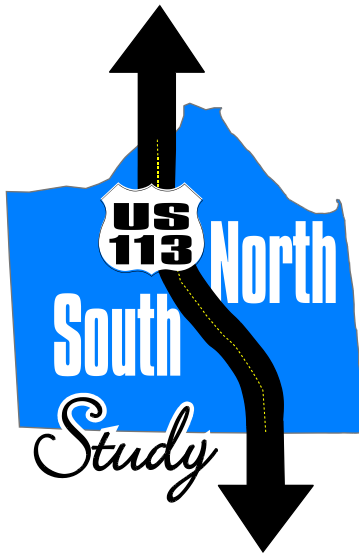


US 113 North/South Study

Georgetown Area

Environmental Assessment

Sussex County, Delaware



February 2014

FEDERAL HIGHWAY ADMINISTRATION

DELMAR DIVISION

US 113 North/South Study

From south of Avenue of Honor to north of Deer Forest Road/Redden Road, south of Ellendale

Sussex County, Delaware

ADMINISTRATIVE ACTION

GEORGETOWN AREA
ENVIRONMENTAL ASSESSMENT

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
and
DELAWARE DEPARTMENT OF TRANSPORTATION

Submitted Pursuant to: 42 U.S.C. 4332(2)(c); 49 U.S.C. 303
23 U.S.C. 128 (a) and CEQ Regulations (40 CFR 1500 et. seq.)

Approved for advertisement of availability for public review and comment:



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02/19/14
Date



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03/25/14
Date

A. ADMINISTRATIVE ACTION

Federal Highway Administration

- ☒ Environmental Assessment
- ☐ Draft Environmental Impact Statement
- ☐ Final Environmental Impact Statement
- ☐ Finding of No Significant Impact
- ☐ Section 4(f) Evaluation

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1 PURPOSE AND NEED

1.1 INTRODUCTION

1.1.1 Background

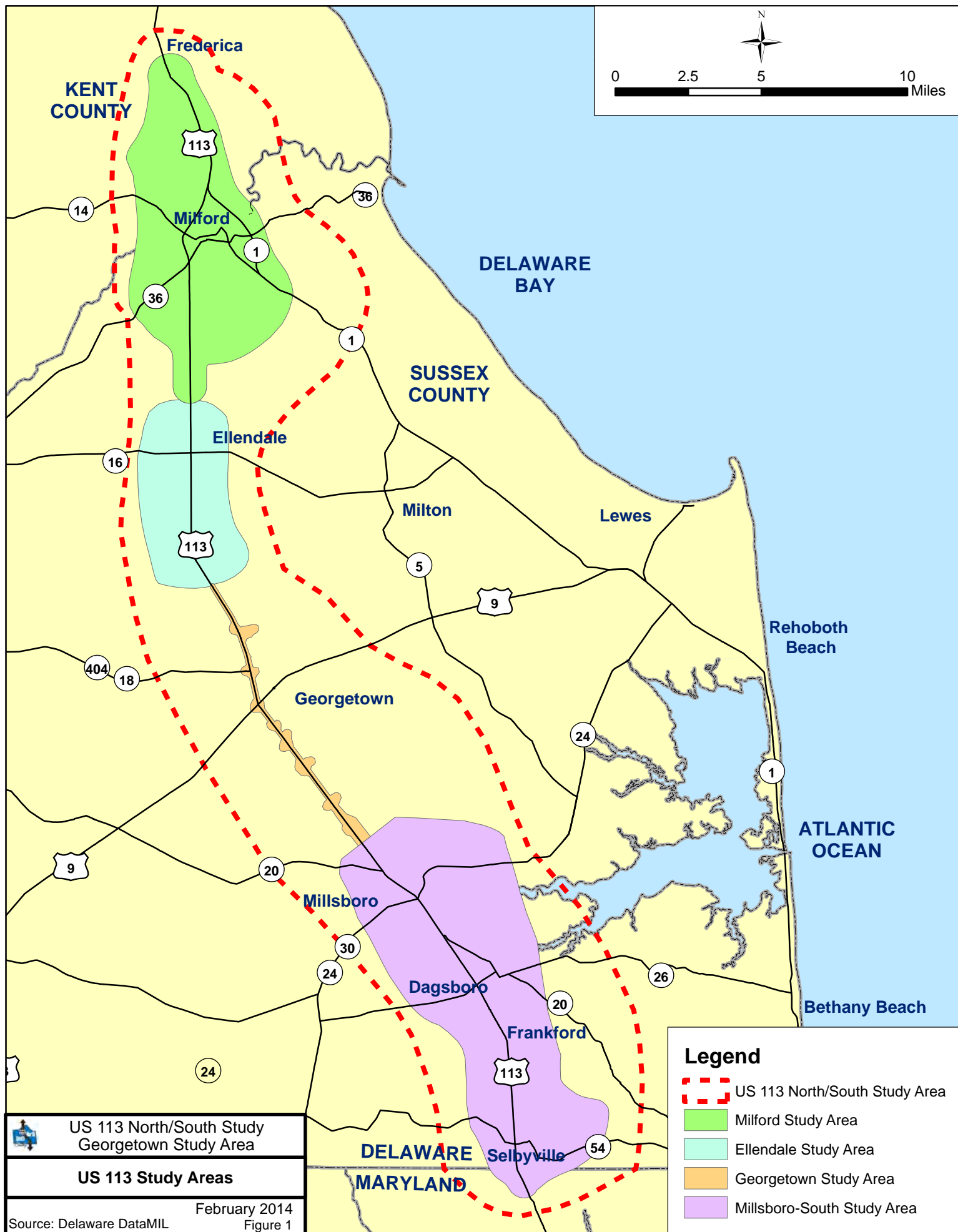
In 1996, the General Assembly passed Section 145 of Title 17 of the Delaware Code, enabling the Department of Transportation (DelDOT) to develop a program to protect roadway corridors serving primarily statewide and/or regional travel in the State. The law established a process for nominating new roadway corridors every three years through the Department's Statewide Long Range Transportation Plan (LRTP). US 113 was proposed for inclusion in the original program, which was formally adopted in February 1997.

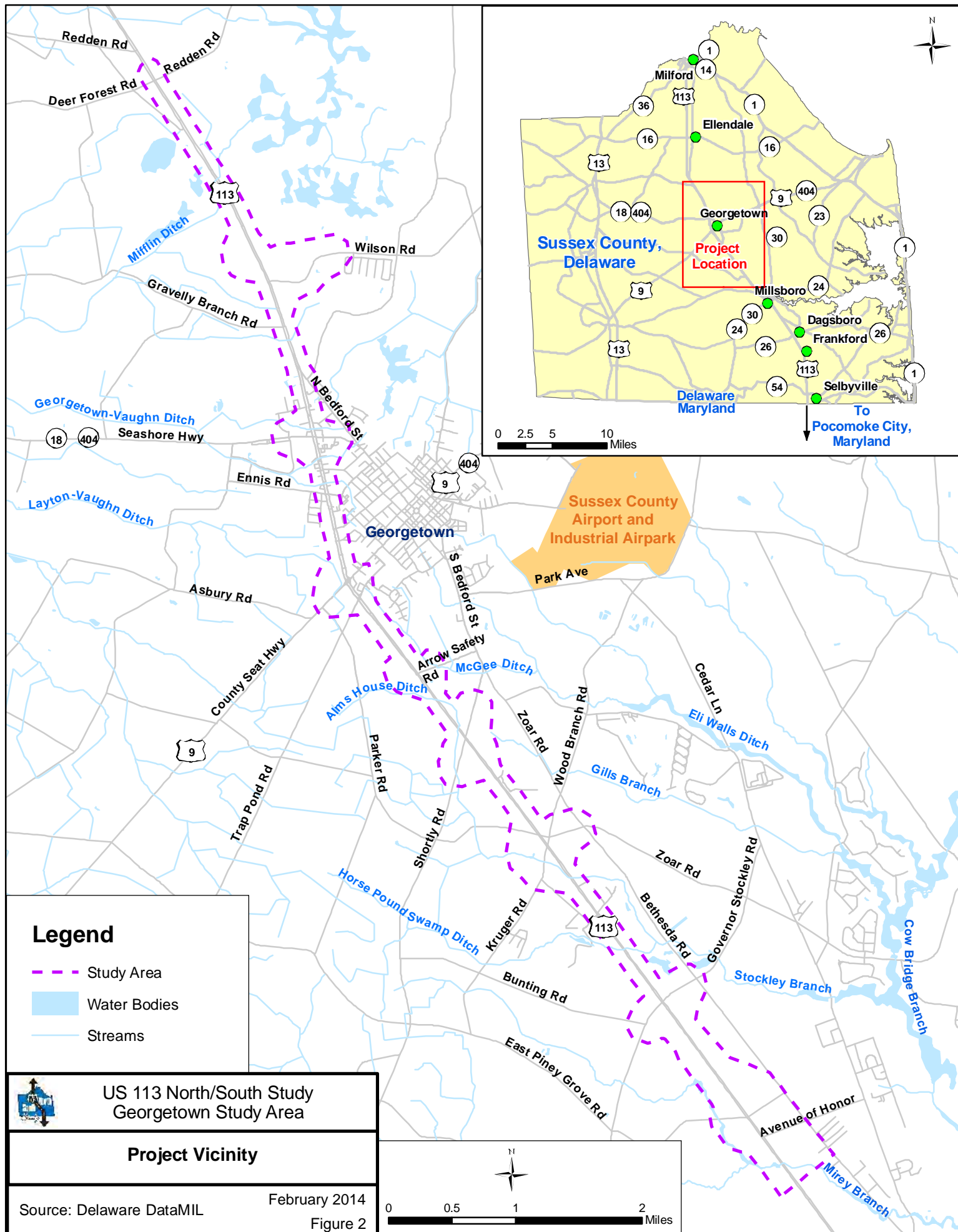
In 2000, the Delaware State Senate adopted Senate Resolution No. 20, calling upon DelDOT "to undertake the planning process for a new north-south limited access highway as an alternative to present US 13 and US 113 through Sussex County." Completed in 2001, the *Sussex County North-South Transportation Feasibility Study* confirmed the feasibility of a north/south limited access highway through the County and recommended that the US 113 corridor be studied for this purpose. Furthermore, the Study expressed a preference for converting the existing alignment of US 113 to limited access where practical, and constructing limited access bypasses only in those areas where impacts along the existing alignment are determined to be too severe.

The US 113 North/South Study encompasses the area adjacent to US 113 for approximately 40 miles, from the Maryland/Delaware state line to southern Kent County near Milford. Initially, three documents were proposed for the study area: an Environmental Impact Statement (EIS) for the area from the Maryland state line to Georgetown, an Environmental Assessment (EA) for the Ellendale area, and an EIS for the Milford area. As **Chapter 2** explains, the Georgetown-South document evaluated an On-alignment Alternative and numerous bypass alternatives for each town in the project area. Following preliminary studies, all of the Georgetown bypass alternatives were eliminated from further consideration. With modification of the existing alignment as the only remaining alternative (see the alignment sheets in **Appendix A** for details), the Federal Highway Administration (FHWA) deemed it appropriate to separate the Georgetown area from the remaining portion of the previous Georgetown-South study area. Further, FHWA decided an EA was the appropriate level of documentation for the Georgetown area. Additional details, along with information on independent utility, are provided in *US 113 North/South Study, Addendum to Defining Logical Termini*. The US 113 study areas are depicted on **Figure 1**.

1.1.2 Study Area

The Georgetown study area is approximately 10.4 miles long and extends from 0.5 miles south of Avenue of Honor to 0.5 miles north of the US 113 intersection with Deer Forest and Redden Roads. It is widest along Wilson Road, where an interchange configuration causes it to span approximately one mile. Except at proposed intersections and interchanges, the study area closely follows US 113 and is 0.2 miles wide. **Figure 2** depicts the study area and its location within Sussex County.







1.2 PROJECT PURPOSE

The purpose of the project is to preserve mobility for local residents and businesses while providing highway improvements that would reduce congestion, decrease accidents, and accommodate anticipated growth in local, seasonal, and through traffic in a manner that is consistent with legislative direction for a limited access facility.

1.3 PROJECT NEED

Sussex County is growing at an unprecedented rate. New development is rapidly replacing farm fields, and it is expected to increase the County's population and employment by approximately 60 percent over the next 30 years. Continued development in the study area would require additional access points and traffic signals along US 113, resulting in greater conflicts, reduced safety, and increased traveler delays. This project is needed due to the extraordinary growth along the US 113 corridor, and its burden on the local and regional transportation network.

1.3.1 Roadway System

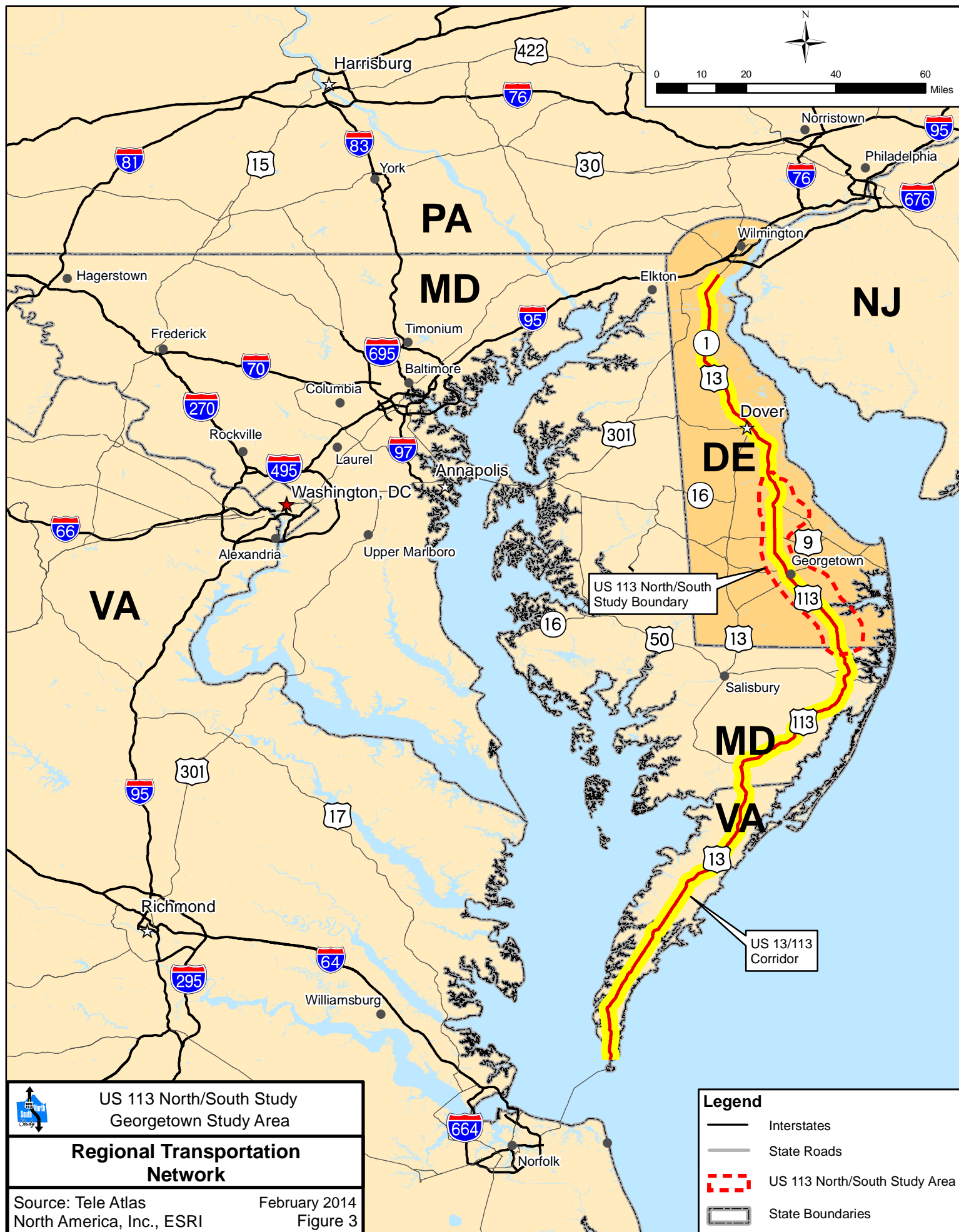
US 113 and US 13 are generally parallel routes that run north-south through the Delmarva Peninsula. Each is a principal arterial highway and a component of the National Highway System. US 13 is between eight and ten miles west of US 113 and connects North Carolina, Virginia, Maryland, Delaware, and Pennsylvania. In Delaware, the 2001 Sussex County North-South Feasibility Study recommended the US 113 Corridor for a north/south limited access highway through the County. **Figure 3** provides a map of the regional transportation network.

US 113 is 73 miles long and begins at US 13 in Pocomoke City, Maryland. It enters Delaware in Selbyville, and then heads generally north, until its terminus at Delaware State Route (SR) 1 on the northern edge of Milford. Along the way, it passes through Frankford, Dagsboro, Millsboro, Georgetown, Ellendale, and Milford. As shown on **Figure 1**, there are ten major intersections along the Delaware portion of US 113. Two of these routes (US 9 and SR 18/404) intersect US 113 in the study area.

With access-limitation improvements planned on SR 1 north of Milford, and currently in place on US 113 south of Selbyville, creating a limited-access connection through the study area would maintain system compatibility and continuity, and would permit US 113 to more effectively serve future transportation needs. With completion of the US 113 North/South projects, approximately 75 percent of the Delmarva Peninsula would have a north-south limited access facility.

1.3.2 Existing and Future Traffic

Two important measures of how well a road serves its users are accessibility and mobility. Accessibility is determined by the frequency of driveways and access points along the road. More frequent access usually results in a shorter travel distance between a road user's origin and destination. Mobility is measured in terms of the capacity of a road to move vehicles and the speed at which the vehicles travel.





Accessibility

Accessibility to and from US 113 varies within the study area. The number of intersections per mile averages between one and two from the northern terminus to Georgetown, and between five and six in Georgetown itself. Similarly, driveway densities are higher in Georgetown (approximately 29 per mile) than in areas outside the town (between 2 and 28 per mile). As development continues in and near Georgetown, pressures to increase the number of driveways and traffic signals along US 113 in the study area are likely to escalate.

Mobility

Mobility along US 113 is a function of travel demand (the volume of traffic that wants to use the system) and intersection capacity (the ability of US 113 to accommodate the travel demand).

Travel Demand (Daily): Along US 113, as in much of Sussex County, the presence of beach resorts results in large seasonal fluctuations in travel demand. In 2003, average annual daily traffic (AADT) along US 113 in the study area was between 21,037 and 23,793 vehicles. For comparison, peak season average daily traffic (PADT) varied between 26,889 and 28,482 vehicles, or between 20 and 28 percent higher than AADT. PADT occurs during the summer, and is a result of beach traffic.

DelDOT's peninsula-wide travel demand model was used to determine projected traffic along US 113 in 2030, the target year for this study. The current large seasonal fluctuations in travel demand are expected to continue into the future. Based on model estimates, it is expected that the daily volumes that occur during the summer season today would become the normal AADT by 2030, and summer volumes would increase as much as 35 percent from today's PADT.

Travel Demand (Hourly) versus Route Capacity: Mobility is more directly affected by peak hour volumes than daily volumes because congestion occurs when hourly demand nears or exceeds a route's hourly capacity. In Georgetown, US 113 carried up to 3,560 vehicles in the peak hour in 2008. Outside Georgetown, the *Highway Capacity Manual* (HCM) indicates a theoretical capacity of 6,840 passenger cars per hour (see *Exhibit 21-2*) at level of service (LOS) D. In central Georgetown, the HCM estimates a capacity of 3,400 passenger cars per hour at LOS D. This indicates that in Georgetown, where there is a combination of high volumes and lower capacity, US 113 currently operates slightly above capacity during the peak hour.

Hourly demand is expected to increase. In the Georgetown portion of the study area, US 113 is expected to carry up to 7,300 vehicles in the peak hour in 2030. Anticipated volumes in most rural portions of US 113 would remain below the theoretical capacity of 6,840 passenger cars per hour at LOS D.

Travel Times: Since US 113 provides a viable alternate for SR 1 users traveling to and from beaches in Delaware and Maryland, peak period travel demand on US 113 is, and would continue to be, highly dependent on operating conditions on SR 1. The use of US 113 to access Delaware's resort areas has created congested conditions in towns along the highway due to traffic passing through densely-developed downtowns. For example, on SR 404 through Georgetown, travel times from US 113 to SR 30 (5.2 miles) are between 9.6 and 10.5 minutes. Speeds are limited to 30 to 33 miles per hour (mph), depending on the direction of travel. By



2030, travel times are anticipated to increase to between 11.4 and 13.8 minutes for this same section of roadway. Speeds are expected to drop to between 23 and 27 mph. Both the current and predicted speeds are inconsistent with this road's designation as an arterial highway. As inconvenient as this congestion is for beach-bound travelers, it is even more disruptive for local residents and business owners, who often depend on SR 404 for local travel.

Intersection Capacity: Intersection operations, as indicated by LOS and intersection capacity, were evaluated using methods outlined in the HCM. Each signalized intersection in the study area was studied to determine whether it operated acceptably or unacceptably. **Table 1** provides 2003 and 2030 peak season LOS for each signalized intersection. Two of the four intersections operate at an unacceptable level today, and three of the four would operate at an unacceptable level in 2030. Future improvements at the failing intersections and to segments of US 113 between the failing intersections would be completed first, with improvements to US 113 at Wilson Road scheduled as they become necessary.

Table 1: Study Area Intersection Operations

Intersection	2003 Peak Season LOS	Acceptable?	Projected 2030 Peak Season LOS	Acceptable?
US 113 @ Wilson Road	A	Yes	C	Yes
US 113 @ SR 18/SR 404	F	No	F	No
US 113 @ US 9	F	No	F	No
US 113 @ Shortly Road/South Bedford Street	C	Yes	E	No

1.3.3 Safety

Emergency Services Response

Fire, ambulance, and paramedic response along the US 113 corridor in the study area is provided by the Georgetown and Millsboro fire departments. These two departments responded to 352 calls along US 113 in 2007, the year with the most recent data available. Their average response time was seven minutes from unit assignment to unit arrival. The closest emergency and urgent care facilities are in Milford, Lewes, and Seaford, which are up to 21 miles from a given point in the study area. Thus, it is essential that local highways, including US 113, do not experience congestion that can delay emergency response. During congested periods, response times can increase to 14 to 20 minutes, potentially resulting in the inability to provide care when it is urgently needed.

Critical Ratios

A Critical Ratio (CR) is an indicator of the relative safety of a section of roadway. It compares crash rates on a given stretch of roadway with a threshold rate for similar roadways throughout the state. A CR greater than one indicates that a roadway segment has a higher crash rate than similar roadways. As shown in **Table 2**, seven sections of US 113 within the study area have CRs greater than one. Thirty-six percent of US 113 in the study area exceeds the statewide crash standard for roadways of its type.



Table 2: US 113 Sections with Critical Ratios Greater Than 1.0 ¹

Segment Description	Length (miles)	Critical Ratio Range ²
From 0.18-mile south of Gov. Stockley Road to 0.21-mile north of Gov. Stockley Road	0.4	1.35 - 1.47
From 0.12-mile south of Kruger Road/Woods Branch Road to 0.09-mile north of Alms House Road/Speedway Road	0.3	1.28
From 0.28-mile south of S. Bedford Street/Shortly Road to 0.31-mile north of S. Bedford Street/Shortly Road	0.6	1.11 - 2.67
From 0.21-mile south of Arrow Safety Road to 0.18-mile north of Arrow Safety Road	0.4	1.62 - 1.64
From 0.17-mile south of Trap Pond Road/Old Laurel Road to 0.16-mile north of US 9	0.5	1.58 - 2.21
From 0.02-mile south of Bramhall Avenue to 0.20-mile north of SR 18/ SR 404	0.5	1.35 - 1.81
From 0.10-mile north of Gravelly Branch Road to 0.22-mile north of Wilson Road	0.5	2.42 - 2.74
Total	3.2	1.11 – 2.74

¹ CRs based on 2005 to 2007 crash data

² Range of CRs for 0.30-mile sections of roadway within the segment

Reviewing the types of crashes that occur on a highway is important in assessing crash patterns and determining which patterns can be corrected through highway and traffic engineering improvements. Angle crashes typically occur at unsignalized intersections, median crossovers, and private driveways. Rear end crashes typically occur on the approaches to signalized intersections. The prevalence of both of these crash types in the study area is a function of the number and frequency of access points along the US 113 corridor. The following is a summary of the intersections (both signalized and unsignalized) with the highest number of crashes (20 or more) from January 2003 through December 2007, the most recent data available:

Signalized

- SR 18/SR 404 – 37 crashes
- Shortly Road/South Bedford Street (Road 431) – 34 crashes
- US 9 – 29 crashes

Unsignalized

- Ennis Road/North Street (Road 519) – 21 crashes
- Woods Branch Road/Kruger Road (Road 321) – 20 crashes

Anticipated growth in the study area would likely increase the number of access points and traffic signals along US 113. Since a large percentage of the crashes on US 113 currently occur at existing traffic signals, it is likely that the number of such crashes would increase as new signals are installed to accommodate future traffic volumes. These trends indicate that safety on US 113 continues to be a concern and it is likely to get worse if the number of access points is not reduced or an alternative facility to serve through traffic is not provided.



1.3.4 Preservation of a Transportation Corridor

Population and Land Use

Development within Sussex County has been occurring at a substantial rate over the past decade, and it is expected to continue through the year 2030. Almost 21,000 new households and 7,500 jobs are projected in the County between 2008 and 2030. These increases follow the significant growth in population and housing that Sussex County has experienced since the early 1990s. Sussex County and its municipalities have been experiencing land development at an unprecedented rate, while transportation infrastructure has lagged behind.

Approximately 50 percent of the additional traffic generated from these new homes and jobs would be carried by US 113. The 1 to 2 percent annual increase in regional traffic, and the increased seasonal demand at the beaches, explain the large amount of anticipated growth in traffic on US 113 in the Georgetown area through the year 2030. In 2006, the estimated population in Sussex County was 180,275 permanent residents, an increase of 124 percent over the 1970 population. By 2030, the population is expected to increase to over 272,000 permanent residents. The number of seasonal residents of the county is also growing. By 2030, approximately 109,000 seasonal residents are expected, an increase of 73 percent over the 2000 level. Therefore, during the peak season in the year 2030, the needs of 381,000 residents must be met.

The increase in population is expected to result in an increased number of permanent households. Between 2000 and 2030, the number of households in Sussex County is expected to increase by 67 percent to 104,000. Many of these new dwellings are expected to be east of US 113, closer to the beaches. However, escalating land costs and the diminishing availability of land in the resort areas would push development to the west towards the US 113 corridor. In the past few years, several new developments have begun near the study area, including Carriage Place, Shepherds Point, Cinderberry Phase C, and Cinderberry Retirement Village. Similar developments in the future would likely limit the ability to make capacity improvements to US 113 without major impacts to social and economic resources. Therefore, it is anticipated that available land and right-of-way for the roadway improvements would become scarce. Planned development within the study area is shown in **Appendix A, Alignment Sheets**.

While the recent economic downturn has slowed growth throughout the country, the eastern part of Sussex County is expected to remain a popular location for retirees, second homes, etc. Continued development is anticipated in and around the study area. Improvements to US 113 and access to connecting east-west corridors would help accommodate new and planned nearby developments, thus make for an efficient limited access transportation corridor that would link burgeoning development throughout the County.

Economic Development

The US 113 corridor is an important contributor to economic development in Sussex County and the region. Its importance would continue into the future, making it vital to at least preserve existing capacity in this transportation corridor.

Agriculture is the primary industry in Sussex County, with approximately 46 percent of the total land in the County devoted to agriculture. The County would continue to promote businesses



that are related to agriculture or those that are compatible with agriculture. The County recognizes the unique transportation needs of the agriculture industry and has established policies to protect and address those needs.

The Delmarva Poultry Industry reports that US 113 is vital to Delaware's chicken industry. Sussex County ranks first among America's counties in broiler chicken production. Four thousand poultry-related jobs are located in the vicinity of Georgetown. There are also poultry facilities in other parts of Sussex County, and in nearby Maryland and Virginia, that ship products north by truck via US 113. Additionally, mature chickens are transported to the processing plants via truck along US 113.

The primary means of movement for goods in Sussex County is via truck. Trucks carry food products, consumer goods, raw materials, and commercial supplies into the County and they carry finished products out of Sussex County. According to the 2001 *Sussex County LRTP*, truck traffic on US 113 is nearly double the five to ten percent typical on most public roads. Trucks affect and are affected by roadway performance.

1.3.5 Federal, State, and Local Initiatives

Multiple federal, state, and local programs and plans support the Georgetown project.

Federal Initiative

In June of 2009, the Environmental Protection Agency (EPA), US Department of Housing and Urban Development (HUD), and US Department of Transportation (USDOT) created the Partnership for Sustainable Communities. This initiative focused on increasing access to affordable housing, providing more transportation options, and lowering transportation costs while protecting the environment. The Partnership created a list of six livability principles, which are detailed below. Where applicable, information on how this project addresses these principles is also provided.

- **Provide more transportation choices** to decrease household transportation costs, reduce our dependence on oil, improve air quality, and promote public health. Increasing capacity with the addition of a northbound/southbound through lane and grade separated intersections will improve the safety and efficiency of all travel on US 113 through Georgetown. The reduction in peak hour travel time delays and volume of idling vehicles at signalized intersections will help reduce road user costs and improve air quality. The final design of the proposed improvements will include provisions to accommodate multi-modal traffic in accordance with DelDOT's Complete Streets policy.
- **Expand location- and energy-efficient housing choices** for people of all ages, incomes, races, and ethnicities to increase mobility and lower the combined cost of housing and transportation. *Providing grade separated intersections will improve mobility throughout the Georgetown area. Local east/west travel along roads crossing US 113 will be safer and more efficient.*
- **Improve economic competitiveness of neighborhoods** by giving people reliable access to employment centers, educational opportunities, services and other basic needs. *The proposed US 113 project will provide improved access among towns in Sussex County and elsewhere in Delaware and reduce time-to-market for commercial establishments.*



- **Target federal funding toward existing communities** – through transit-oriented and land recycling – to revitalize communities, reduce public works costs, and safeguard rural landscapes. *The proposed project seeks to improve the existing US 113, rather than create a bypass on currently undeveloped land.*
- **Align federal policies and funding** to remove barriers to collaboration, leverage funding and increase the effectiveness of programs to plan for future growth.
- **Enhance the unique characteristics of all communities** by investing in healthy, safe, and walkable neighborhoods, whether rural, urban, or suburban.

State Initiatives

The 2002 *Statewide LRTP* is DelDOT's strategic long-range planning tool. The plan identifies long-range (20 years into the future) principles, policies, and actions to address statewide needs and priorities. This study is supported by LRTP policies that allow DelDOT to conduct corridor and area studies. These studies support effective planning and management and identify the most effective transportation facilities. The LRTP also includes continued implementation of DelDOT's Corridor Capacity Preservation Program (CCPP) for US 113 from Milford south to the Maryland state line. The purpose of the CCPP is to accommodate existing and future development without degrading the traffic capacity of the corridor.

The *Strategies for State Policies and Spending* were adopted in 1999. The State uses the strategies to make decisions such as the allocation of new state funding for farmland preservation, road construction, open-space preservation, transportation investments, state-supported housing development, and water and wastewater financing.

Transportation Incident and Event Management Plan (TIEMP): Emergency evacuation is a concern in Sussex County due to the threat of coastal storms and flooding. Approximately 48 percent of the County's housing units are considered "vulnerable" in a Category 4 hurricane. The TIEMP has identified US 113 as a designated north-south evacuation route from Kent County in the north to Maryland in the south. US 9, which crosses US 113 in the study area, is designated as an emergency east-west evacuation route. Maintaining adequate traffic capacity along evacuation routes is critical to the safety of Sussex County residents and visitors.

Local Initiatives

Sussex County

The 2008 *Sussex County Comprehensive Plan* recommends implementation of improvements designed to preserve and increase capacity on US 113. The Plan cites the need to accommodate significant through and regional traffic while preserving mobility for local residents and access to local businesses, and the need to improve the function of US 113 as an emergency evacuation route.



Town of Georgetown

The 2010 *Town of Georgetown Comprehensive Plan* identifies three major transportation goals:

- 1) Work with developers so that they play a key role in funding and completing roadway improvements adjacent to new developments;
- 2) 2) Reduce stress on the Market Street/Route 9 corridor, addressing issues at the Circle and those brought on by warm weather weekend traffic; and
- 3) 3) Improve conditions for pedestrians, bicyclists, carpoolers, and transit users.

The *Comprehensive Plan* has a lengthy discussion of the US 113 project. It recognizes that while DelDOT intends to construct the Refined On-alignment Alternative in time, funding for construction is uncertain. Therefore, the Plan “needs to be able to function even if major improvements to Route 113 are never built.” The Plan recommends minimizing access points along US 113 through the use of interconnected driveways and/or rear-access connections that are shared by businesses.



2 ALTERNATIVES

2.1 INTRODUCTION

This chapter describes the development of alternatives and the reasons for their elimination or retention for further evaluation. Information on the preferred Build Alternative is also provided. While DelDOT has officially recommended a preferred alternative, the final selection of an alternative would not be made until the associated impacts and comments on the Draft EA and from the formal public comment period have been fully evaluated, and FHWA has issued a Finding of No Significant Impact.

2.2 ALTERNATIVES DEVELOPMENT

Initially, a broad range of alternative concepts was considered and reviewed against the project's purpose and need. Next, a series of preliminary build alternatives was developed. Finally, through coordination with resource agencies and the public, the alternatives were evaluated to create a list of Alternatives Retained for Detailed Study (ARDS).

2.2.1 No-build Alternative

The No-build Alternative includes the existing network of roads plus all currently programmed and funded transportation projects in the study area, with the exception of the US 113 North/South Study. Other than Highway Safety Improvement Program (HSIP) projects, there are no improvements planned to facilities within the Georgetown study area. Therefore, the No-build Alternative assumes no construction other than routine maintenance and repair, and HSIP projects, such as shoulder widening, improved signage and road markings, installation of rumble strips, and construction of traffic calming measures.

Since the No-build Alternative does not provide for access limitations, reduced congestion, decreased accidents, or improved system linkages, it does not meet the purpose of and need for this project. However, the No-build Alternative does provide a baseline condition with which to compare the other alternatives and their consequences. As such, the No-build Alternative is retained for evaluation purposes. Improvements associated with the No-build Alternative could have environmental effects that have not been evaluated as part of this study.

2.2.2 Transportation System Management Alternative

The Transportation System Management (TSM) Alternative includes those activities that maximize the efficiency of the present system. The options include loop detectors, fringe parking, ride sharing, traffic signal optimization, improved signing, and high occupancy vehicle lanes on existing facilities.

The TSM Alternative does not provide for access limitation and, therefore, does not meet the purpose of and need for this project. It has been eliminated from further consideration.



2.2.3 Mass Transit Alternative

The Mass Transit Alternative consists of major investments by the Delaware Transit Corporation (DTC), so that additional roadway capacity would not be required in the project area. The DTC continues to invest in all elements of mass transit throughout the state. However, the Mass Transit Alternative would not reduce single occupancy vehicle travel demand such that adding capacity to the roadway network is not required. In addition, this alternative does not meet other project needs, including a need for improved system linkages. Therefore, the Mass Transit Alternative has been eliminated from further consideration.

2.2.4 Build Alternative

The Build Alternative consists of upgrading existing US 113 with grade separated interchanges and constructing local access roads, or of constructing a new roadway on new alignment. The Build Alternative is the only broad-ranged concept that meets the purpose of and need for this project.

For the US 113 North/South Study, the Build Alternative has two major options: on-alignment concepts and off-alignment concepts that bypass the densely developed segments of US 113.

2.3 BUILD ALTERNATIVES DEVELOPMENT

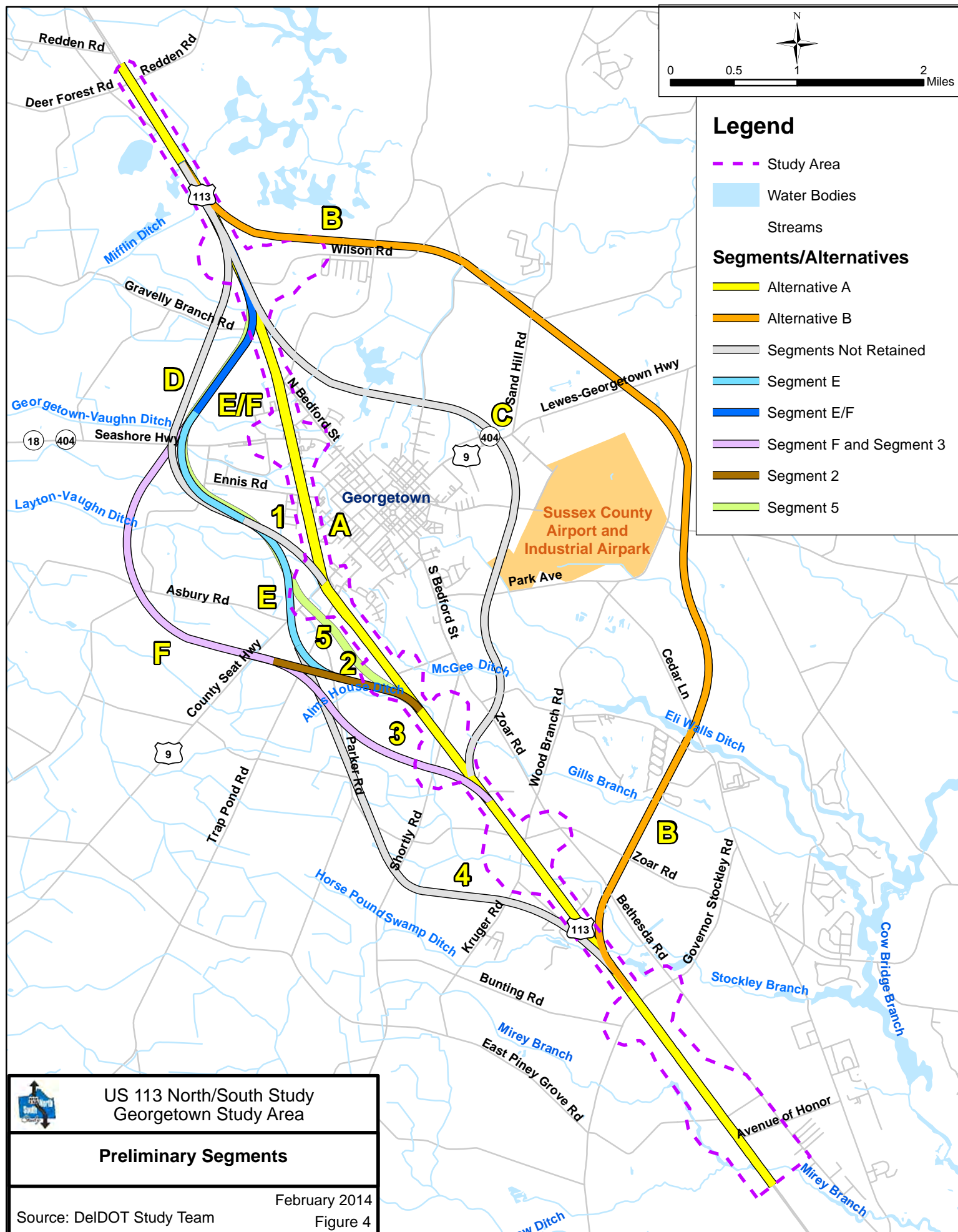
The Build alternatives were comprised of a series of segments that were developed for specific purposes, such as logical interchange locations or avoidance of known socio-economic, natural, or cultural resources. The segments are depicted on **Figure 4**.

2.3.1 Existing Alignment

Three alternatives were considered to upgrade the existing alignment of US 113.

Alternative A, Options 1 and 2 include upgrading existing US 113 to limited access throughout the study area. This would be achieved through the construction of new northbound limited access lanes, denial of access to existing southbound lanes, creation of new grade separations and access ramps, and the addition of frontage or rear access roads. The differences between Options 1 and 2 are minor adjustments to the local access roads and interchange configurations.

Alternative A, Option 3 consists of providing one additional through lane in each direction on US 113 within the study area. From south of US 9 to north of SR 18/404, Option 3 would include a new four-lane “express lane” section in the existing median. US 113 traffic to and from Georgetown would enter and exit at either end of the express lanes. Other than the express lane section, all existing signals would be retained.





2.3.2 Eastern Bypass Segments

Segments B and **C** are stand-alone alternatives that would initially follow the On-alignment option from the East Redden Road/Deer Forest Road intersection with US 113. Segment **B** diverts from existing US 113 approximately one mile south of this intersection, while Segment **C** diverts approximately two miles south of the intersection. Segment **B** would include a full interchange at Wilson Road, a partial interchange at Sand Hill Road/Briarwood Road and a full interchange where it crosses US 9/SR 404, approximately 3 miles east of existing US 113. Segment **B** would tie back into existing US 113 with a directional interchange north of Governor Stockley Road. Segment **C** would include a full interchange where it crosses US 9/SR 404, approximately 2 miles east of existing US 113. Segment **C** would rejoin US 113 with a directional interchange between Shortly Road and Alms House Road. After rejoining US 113, both segments would follow an on-alignment option.

2.3.3 Western Bypass Segments

Eight segments, described below, form 13 western bypass alternatives for Georgetown.

Segment D begins approximately one half mile north of Wilson Road, where it diverts from existing US 113 and turns west near Mifflin Ditch to avoid impacts to residences along the western side of US 113. **Segments E** and **F** divert from existing US 113 immediately south of Wilson Road to avoid impacts to commercial properties along the western side of US 113 and to minimize wetland impacts. **Segments D, E,** and **F** continue southwest with a full interchange at SR 18/SR 404, approximately one mile west of existing US 113. After crossing SR 18/SR 404 Segments **D** and **E** bend east to avoid wetlands and provide shorter bypass segments. Segment **F** continues southwest until just north of Raccoon Ditch Road, where it curves to the southeast. It then continues southeast until it intersects US 9 with a full interchange approximately 1.6 miles east of existing US 113.

Segments 1 - 5 provide the southern connection to existing US 113 for **Segments D – F**.

2.4 SEGMENT ELIMINATION

The feasibility and viability of the Preliminary Alternatives were evaluated to determine which should be carried forward into project development. Matrices (available in the project file) were developed to evaluate each alternative with respect to environmental, engineering, transportation, economic development, and right-of-way considerations. These impacts are based on available planning information collected from Sussex County and State of Delaware agencies, field reviews with Federal and State resource agencies, and professional planning and engineering judgment. In addition to information contained in the matrices, citizen input was sought through the project's public involvement program.

Through preliminary evaluation of the matrices and segment combinations, and through public input, several segments were identified for elimination and the number of build alternatives was reduced. The segments that were eliminated are shown in **Table 3**.



Table 3: Segments Eliminated

Segment		Reason
On-alignment	Alternative A, Opt 3	Doesn't meet purpose & need; lack of public support
Eastern Bypass	Alternative C	Inconsistent with Georgetown Comprehensive Plan; lack of public support
Western Bypass	Segment D	Natural resources impacts
	Segment 1	Doesn't meet purpose & need; lack of public support
	Segment 4	Impacts to an agricultural district and a cultural resource

The initial evaluation of preliminary alternatives resulted in eight alternatives being retained for detailed study. These alternatives are listed below; except for the No-build, they are shown on **Figure 5**.

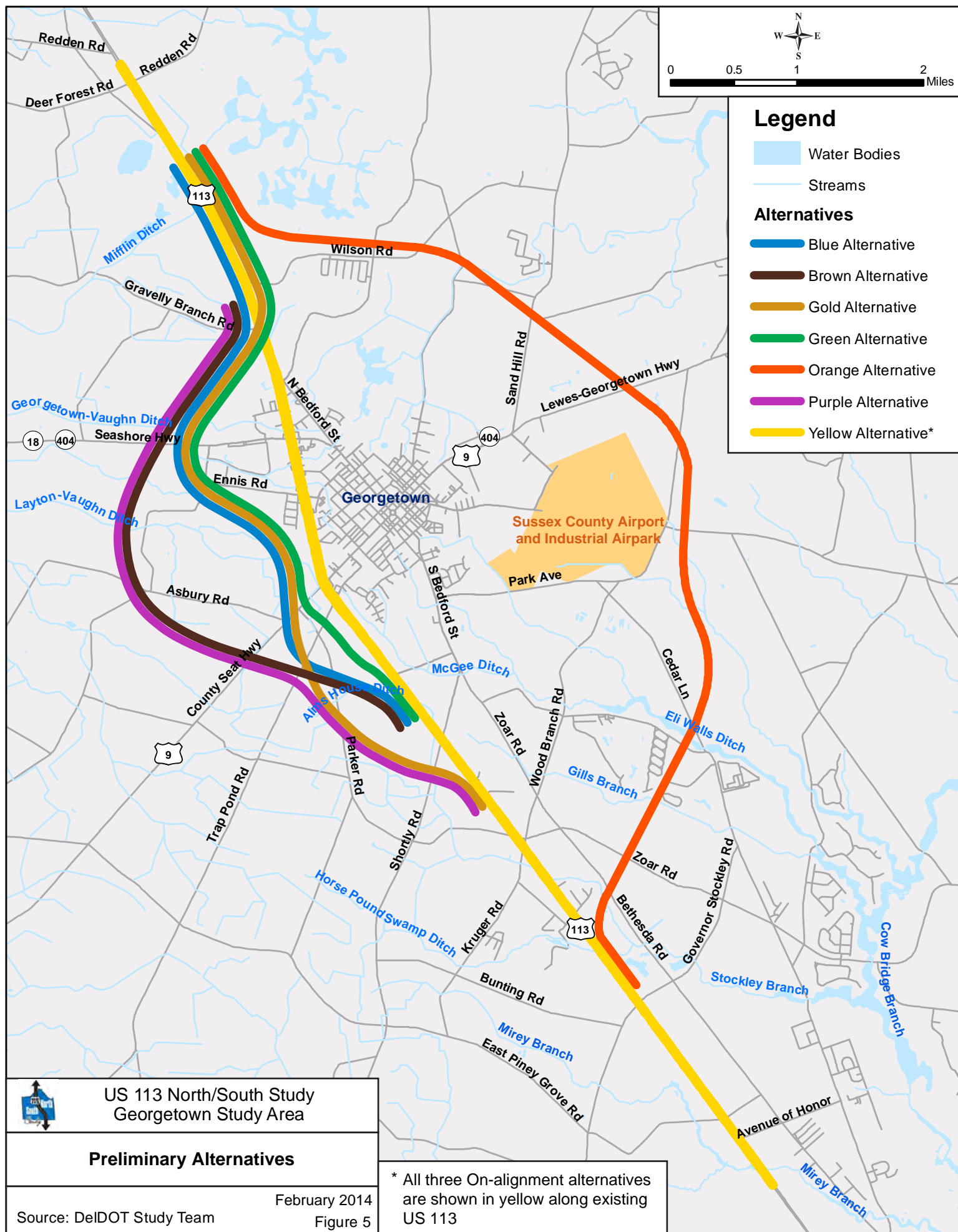
- No-build Alternative
- On-alignment Alternative A, Options 1 and 2 (Yellow)
- Eastern Bypass Alternative B (Orange)
- Western Bypass Alternatives E2 (Blue), E3 (Gold), E5 (Green), F2 (Brown), and F3 (Purple)

2.5 ADDITIONAL EVALUATION OF ALTERNATIVES

2.5.1 Evaluation of Impacts

From fall 2005 through spring 2007, DelDOT's project team conducted a detailed evaluation of natural, cultural, and socio-economic resource impacts of the alternatives listed in **Chapter 2.4**. Specifically, the following activities were undertaken:

- The project team consulted with the US Army Corps of Engineers (USACE), EPA, US Fish and Wildlife Service (USFWS), and the Delaware Department of Natural Resources and Environmental Control (DNREC). The project team and agency representatives participated in several meetings and field views to gain a full understanding of natural resource issues, including habitat quality.
- The project team identified and determined all properties and historic districts in the study area that are National Register listed or eligible. The Delaware State Historic Preservation Office (SHPO) has completed its review and concurred on all properties that could be directly affected by alternatives in the study area.
- The project team coordinated with USFWS and DNREC regarding federally rare, threatened, and endangered (RTE) species. Extensive studies were conducted to determine potential impacts to swamp pink (*Helonias bullata*), a Federally-listed plant. No direct impacts were found in the study area. Likewise, the project team obtained DNREC mapping of known Bald Eagle (*Haliaeetus leucocephalus*) nests; none were found in the study area.





- Upon selection of the Preferred Alternative in June 2007, traffic projections for 2030 were updated the using the most current version of the DelDOT travel demand model. The project team used these forecasts to evaluate how the alternatives meet the purpose of and need for the project. The forecasts were also used to calculate traffic-dependent impacts such as noise (based on DelDOT's 2011 noise policy) and air quality (based on DelDOT's FY 2012-2017 Capital Transportation Program, approved October 20, 2011).
- Property and economic impacts were evaluated, and economic impacts to agriculture were calculated.
- DNREC approved and published new State Resource Area and Natural Area maps in the fall of 2006. The project team incorporated that mapping into the US 113 environmental inventory database, evaluated impacts to those areas associated with the alternatives, and made adjustments to minimize impacts.

2.5.2 Public Input

A detailed evaluation of environmental impacts for all of the study area alternatives was presented at a public workshop in Georgetown on March 15, 2007. Over 500 attendees voiced strong opposition to all bypass alternatives, instead expressing support for modifying the On-alignment Alternative to reduce impacts to properties along existing US 113. As a result of public input, DelDOT's Secretary of Transportation directed the project team to refine the On-alignment Alternative to reduce property impacts. This Refined On-alignment Alternative replaced the On-alignment Alternative A, Options 1 and 2.

2.5.3 Elimination of the Bypass Alternatives

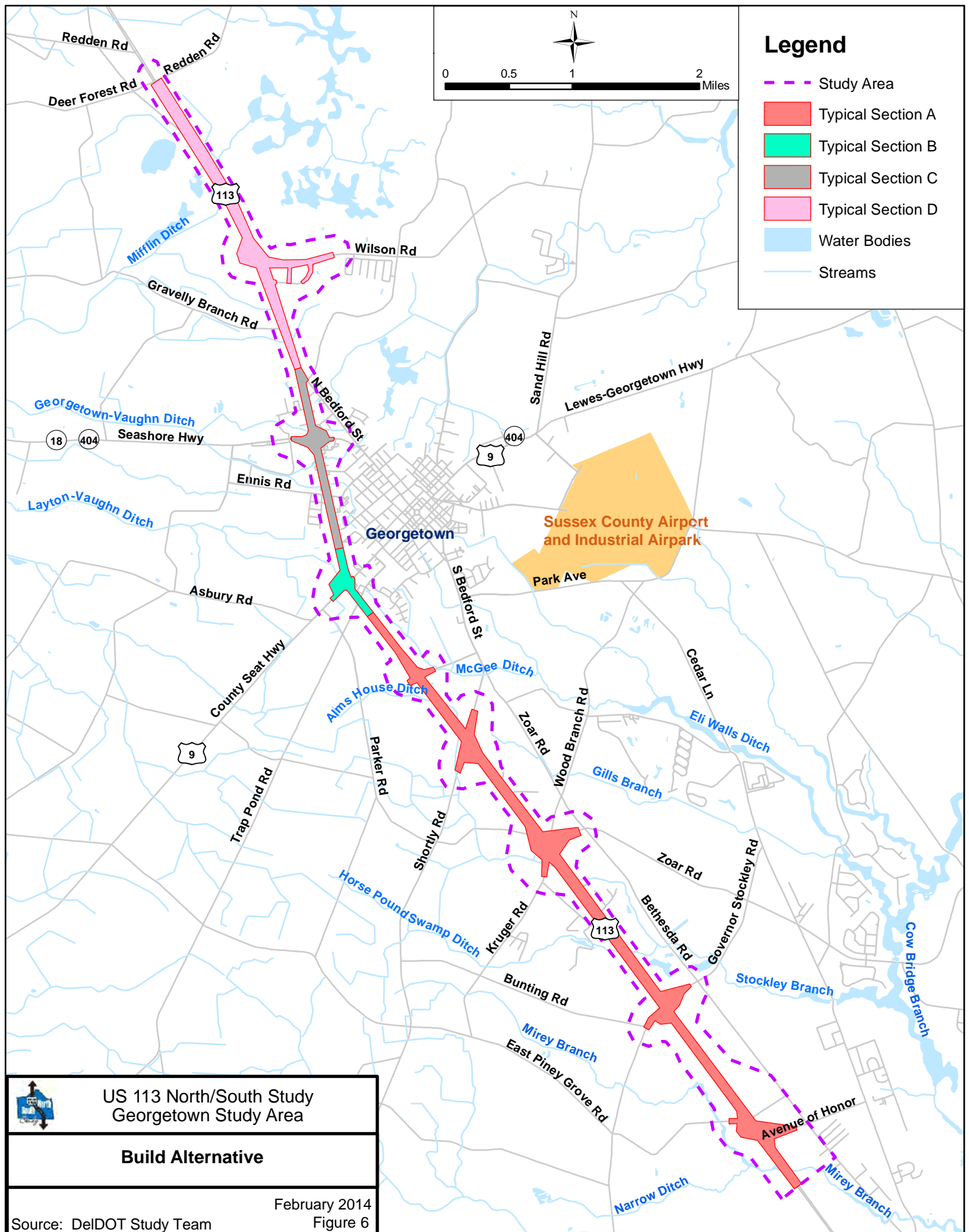
To determine the feasibility of eliminating all bypass alternatives from consideration, the project team evaluated all Georgetown area alternatives, including those initially recommended for detailed study, plus a Refined On-alignment Alternative (described in **Chapter 2.6**). Compared to the other build alternatives, the Refined On-alignment Alternative resulted in reduced natural resources and property impacts, and it had the lowest cost. **Table 4** in **Chapter 3** provides impact and cost details for the alternatives. The Refined On-alignment Alternative also maintains access to most existing properties adjacent to US 113 without the need for the system of access roads proposed as part of the original On-alignment Alternative. Due to public opposition and natural resources impacts, the bypass alternatives were dropped from further consideration.

2.6 ALTERNATIVES RETAINED FOR DETAILED STUDY

Through elimination of segments as described in **Chapter 2.4**, and elimination of the bypass alternatives as described in **Chapter 2.5**, one build alternative and the No-build Alternative have been retained for detailed study. The Build Alternative, shown on **Figure 6**, was selected by DelDOT as the Preferred Alternative after consideration of the public and agency input summarized in **Chapter 4**. It is shown in greater detail on the alignment sheets in **Appendix A**.

2.6.1 No-build Alternative

The No-build Alternative consists of the existing network of roads and all currently programmed and funded transportation projects in the study area. It is described in **Chapter 2.2.1**.





2.6.2 Build/Preferred Alternative (Refined On-alignment)

The project team developed the Refined On-alignment Alternative with the intention of keeping US 113 along its existing alignment while improving the safety and capacity of the facility and minimizing property impacts.

The Refined On-alignment Alternative consists of:

- Widening US 113 to provide one additional lane northbound and southbound
- Provide controlled access with grade separated interchanges at eight locations
- Eliminating all traffic signals and unsignalized crossovers along US 113
- Widening existing shoulders to 15 feet to maintain right-in/right-out movements for existing access and consolidating access points where possible

This alternative begins just south of Woodlawn Memorial Cemetery, approximately one mile north of the Millsboro town limits. The project extends north for approximately 10.3 miles to a location 2.5 miles north of Georgetown near the intersection of East Redden Road/Deer Forest Road. Along US 113, the existing four-lane roadway would be widened to provide six 12-foot lanes and a 15-foot outside shoulder/auxiliary lane. The intent of this alternative is to eliminate left-turns and cross traffic at all signalized and unsignalized intersections throughout the Georgetown area, maintain right-in/right-out access for existing roadside development, consolidate existing access, and limit future access. There would be grade separated interchanges at the following locations: Piney Grove Road/Avenue of Honor, Governor Stockley Road, Speedway Road/Alms House Road/Kruger Road, Shortly Road/South Bedford Street, Arrow Safety Road (partial interchange), US 9, SR 18/SR 404, and Wilson Road. There would be no off-alignment construction, except for interchanges and their approaches.

As listed below, the Refined On-alignment Alternative meets all five components of the project's Purpose and Need:

- **Roadway System:** The Refined On-alignment Alternative is an augmentation of the existing facility and would not change the existing roadway system or linkages.
- **Existing and Future Traffic:** Sussex County's population and employment is expected to grow by approximately 60 percent over the next 30 years. The proposed roadway improvements would address existing and future traffic growth in the study area. Two of the four existing traffic signals in the study area currently operate at unacceptable levels of service. The proposed capacity improvements, including an additional through lane on US 113 and elimination of all signalized intersections, would address existing capacity deficiencies.
- **Safety:** As development increases, so does the potential for conflicts between through traffic and local traffic on US 113. The proposed roadway improvements include the elimination of all signalized and unsignalized cross access in the study area. All median openings would be closed and the addition of interchanges would eliminate the potential for left-turn and angle crashes on US 113.



- **Preservation of a Transportation Corridor:** The Refined On-alignment Alternative would preserve a corridor for a limited access facility, and would meet the transportation needs of a rapidly increasing population. It would also improve the movement of commodities into, out of, and through the study area.
- **State and Local Mandates:** The proposed project conforms to all state and local mandates, and is compatible with local comprehensive plans.

At meetings on April 23 and May 10, 2007, the Refined On-alignment Alternative was presented to resource agency representatives. Its advantages and disadvantages were discussed and concerns were expressed, including placement of stormwater management facilities, impacts to cultural resources, and east/west traffic service. Without expressing a formal opinion, the agencies were generally supportive of the Refined On-alignment Alternative.

It is anticipated that the proposed design and construction of the Preferred Alternative would be completed in segments. Each segment would be phased or prioritized only when needed and as funding becomes available. DelDOT would monitor development and traffic growth, and establish a triggering mechanism to ensure that segments are constructed only as conditions dictate. DelDOT recognizes that fiscal constraints may delay the availability of construction funding, but an established plan will help identify funding needs for the six-year Capital Transportation Program. DelDOT will commit the required funding when it becomes available.

The anticipated total project cost for all proposed improvements included with the preferred alternative is \$331.2 million (2012 dollars). Considering funding constraints and the project need, it is anticipated that the proposed improvements would be phased; therefore, the maximum anticipated individual project cost would be about \$184 million (assuming 2040 YOE).

In order to allocate project funding, DelDOT has developed a priority list of projects in the Georgetown Area based on the proposed improvements associated with the preferred alternative. The criteria evaluated to develop this list included base year and future year levels of service, safety concerns, constructability, and the State's policy (described in the *Strategies for State Policies and Spending*) of focusing public infrastructure investment in existing towns. As a result of that list, it was determined that the grade separated intersection at US 113 and SR 18/SR 404 would be the highest priority. This existing signalized intersection currently operates at a failing level of service and has the highest number of annual reported crashes in the US 113 Georgetown Area.

In DelDOT's most recent update to the Capital Transportation Program (CTP) FY 2015 – FY 2020, funding is programmed for the grade separated interchange at US 113 and SR 18/SR 404 beginning in FY 2017 as noted below.

US 113 at SR 18/SR 404 Grade Separated Interchange

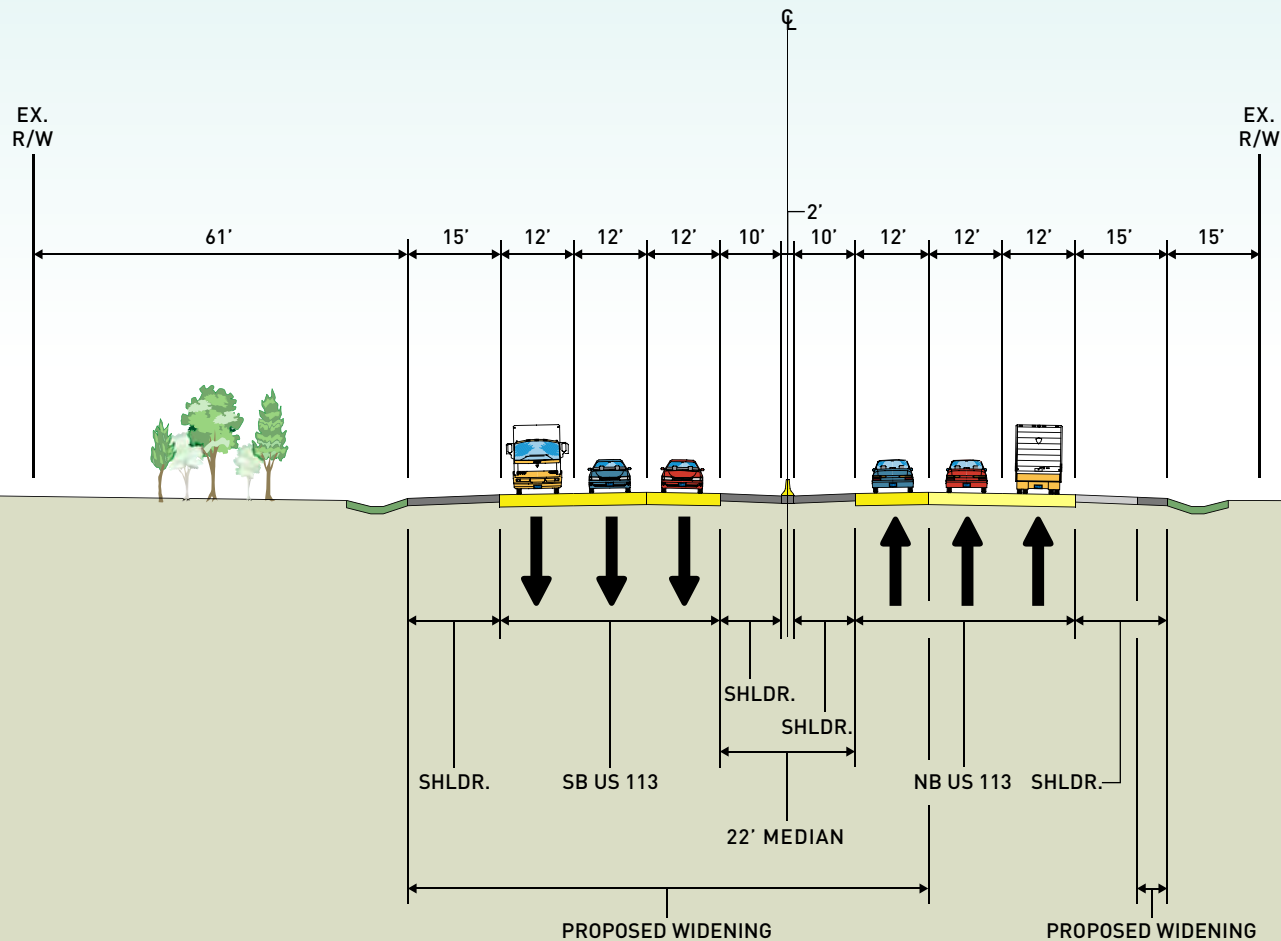
- Preliminary Engineering = \$2.3 million (FY 2017)
- Right-of-Way = \$7.0 million (FY 2018) / \$10.2 million (FY 2019)
- Construction = \$15.0 million (FY 2020)



2.7 TYPICAL SECTIONS


The typical section for the Refined On-alignment Alternative varies and the project area is divided among four segments described below:

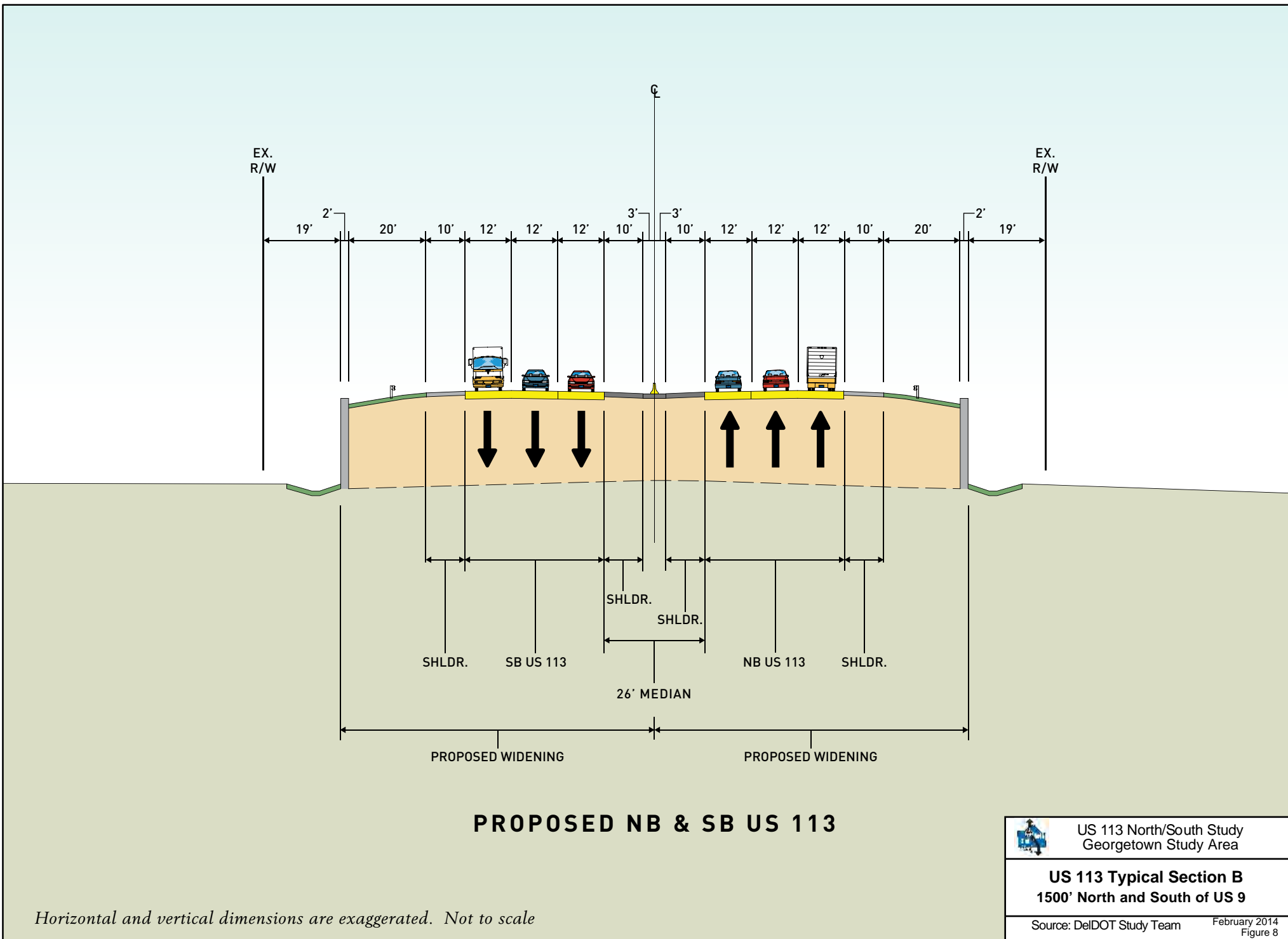
- The first segment (Typical Section A) begins approximately 2,400 feet south of the intersection at US 113 and Avenue of Honor and extends to 1,500 feet south of US 9. Within this segment, the existing alignment is not centered in the existing 200-foot right-of-way and a majority of the widening would be constructed to the west side of US 113. The proposed improvements would include six 12-foot travel lanes, a 10-foot paved inside shoulder, a 15-foot outside shoulder/auxiliary lane, and a 2-foot median barrier. At the southern limits of the Georgetown study area, US 113 will transition from a six-lane typical section to a four-lane section to match the proposed typical section for the Millsboro-South Preferred Alternative. See **Figure 7**.
- **Figure 8** shows the next segment (B), which includes a portion of US 113 1,500 feet south of US 9 to 1,500 feet north of US 9. The proposed improvements include six 12-foot travel lanes, a 10-foot paved inside shoulder, a 15-foot outside shoulder/auxiliary lane, and a 2-foot median barrier. Within this segment, the proposed typical section would be constructed into the existing 92-foot median and the profile of US 113 would be raised over US 9. A new US 113 bridge would be constructed over US 9 and retained fill would be used on the approaches to minimize impacts to surrounding properties. On the bridge, 6-foot inside shoulders would be constructed adjacent to a 3-foot concrete barrier.
- Typical Section C, depicted on **Figure 9**, is the densely developed segment of US 113 through Georgetown. It begins 1,500 feet north of US 9 and extends to North Bedford Street. The proposed improvements would include six 12-foot travel lanes, a 10-foot paved inside shoulder, a 15-foot outside shoulder/auxiliary lane, and a 68-foot grass median. A majority of the widening would occur within the existing 92-foot grass median, but there would be minor widening to the outside.
- **Figure 10** shows the final segment (D), which begins at North Bedford Street and extends north to the intersection of US 113 and East Redden Road. The proposed improvements would include six 12-foot travel lanes, a 10-foot paved inside shoulder, a 15-foot outside shoulder/auxiliary lane, and a 2-foot median barrier. The additional through lanes would be constructed within the existing 50-foot median and there would be minor widening to the outside. At the northern limits of the Georgetown study area, US 113 will transition from a six-lane typical section to a four-lane section to match the proposed typical section for the Ellendale Preferred Alternative.

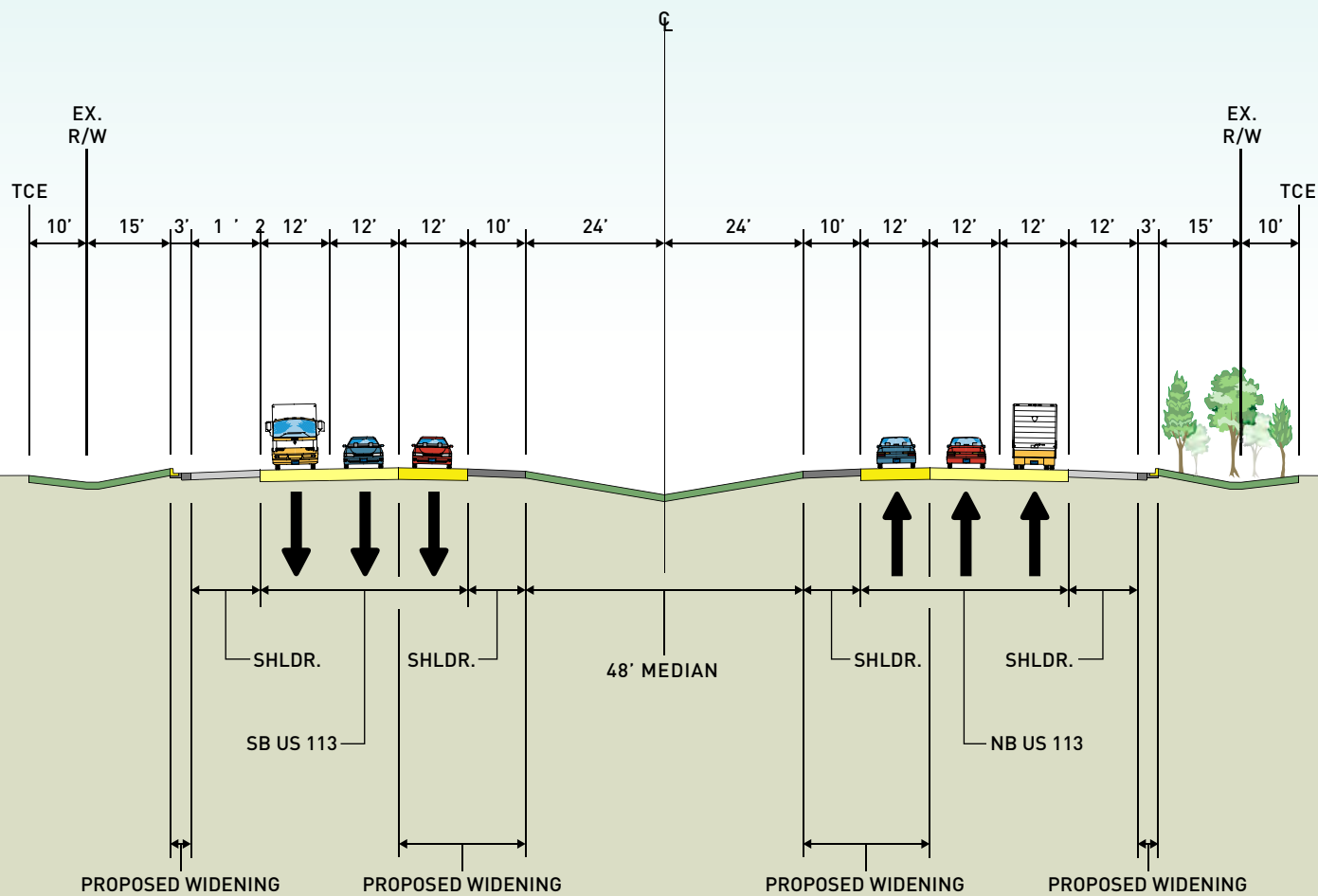


PROPOSED NB & SB US 113

Horizontal and vertical dimensions are exaggerated. Not to scale


	US 113 North/South Study Georgetown Study Area
	US 113 Typical Section A 2400' South of Avenue of Honor to 1500' South of US 9
	Source: DelDOT Study Team February 2014 Figure 7

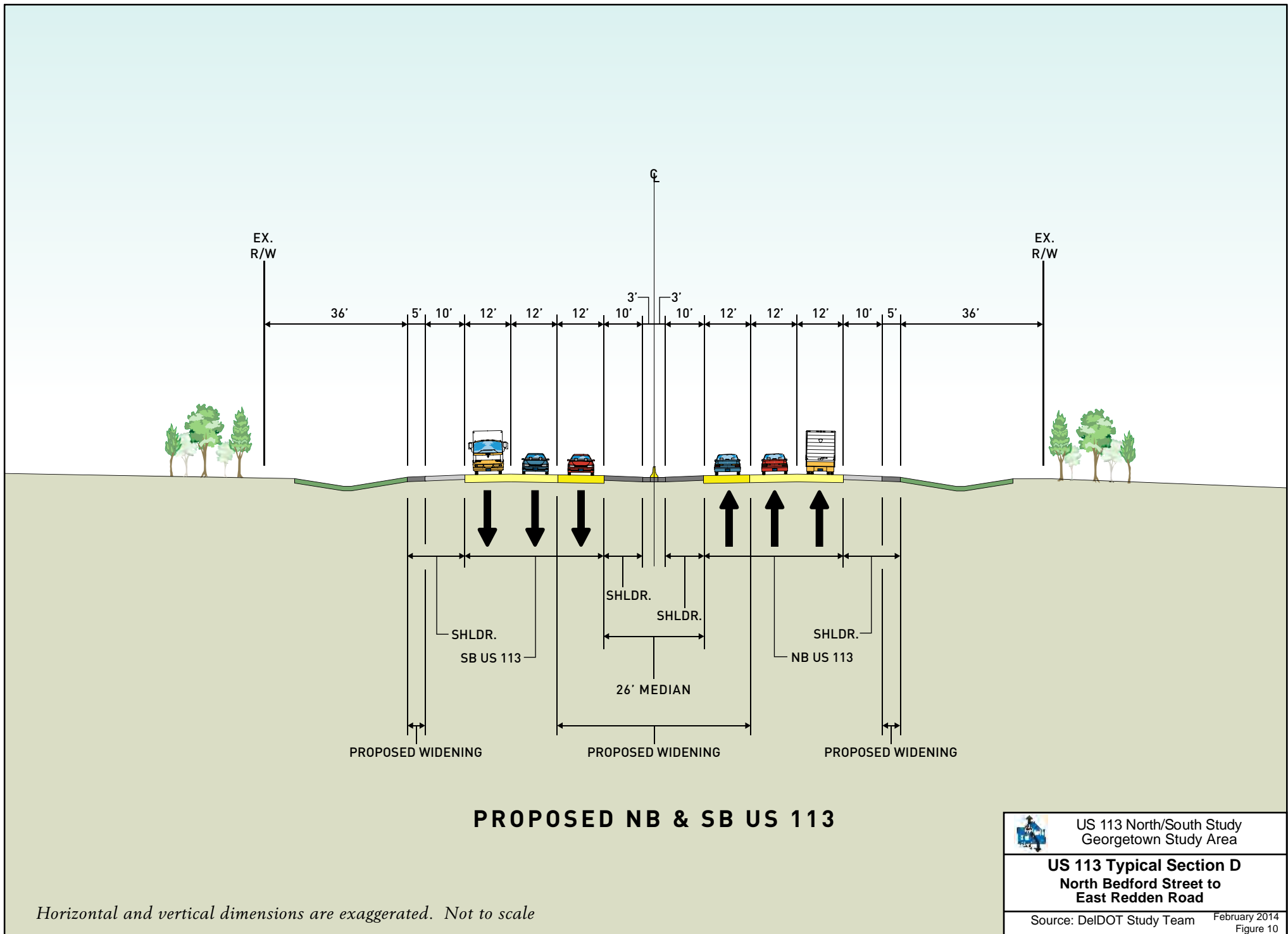




PROPOSED NB & SB US 113

Horizontal and vertical dimensions are exaggerated. Not to scale

	US 113 North/South Study Georgetown Study Area
	US 113 Typical Section C 1500' North of US 9 to North Bedford Street
	Source: DelDOT Study Team February 2014 Figure 9





3 IMPACTS

This chapter discusses the potential beneficial and adverse effects of the Alternatives Retained for Detailed Study (ARDS) for the US 113 North/South Study in the Georgetown area. Impacts for the No-build Alternative are calculated with the assumption that all currently programmed Highway Safety Improvement Program (HSIP) projects in the study area would be implemented, but that no other projects, except routine maintenance and repair work, would be completed. Since 2000 the Delaware HSIP has identified several sites along the US 113 corridor where crash rates warranted safety studies. Under the HSIP program, short-term improvements have been recommended and implemented to provide safety upgrades at three intersections in the Georgetown study area. These projects include signal phasing and intersection improvements at SR 18/SR 404; striping improvements at Arrow Safety Road to channelize northbound US 113 left-turns and prevent east/west cross traffic; and the installation of a roundabout at the intersection of Zoar Road/ Speedway Road/ Bethesda Road. The roundabout project is currently under final design.

The No-build Alternative is retained as a baseline for comparison with the Refined On-alignment Alternative. Impacts of the ARDS are summarized in **Table 4**. Impacts (as of June 2007) for the dropped alternatives are also contained in **Table 4**.

3.1 AGRICULTURAL IMPACTS

Agricultural districts provide a temporary agreement between a property owner and the state or county to continue farming the land for a 10-year period (renewable). Agricultural easements cover farms that are permanently dedicated to agriculture. The dedication is recorded as a deed covenant and applies to all future property owners. There are 32.4 acres of agricultural districts in the study area, but they would not be impacted. There are no agricultural easements in the area.

Prime farmland is available land with the best combination of characteristics for producing agricultural commodities with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion. It is protected under the Farmland Protection Policy Act. The Refined On-alignment Alternative would impact 84.5 acres of farmland, of which 16.3 acres are prime farmland. Although no mitigation is required, efforts were made to protect this resource when possible

3.2 SOCIOECONOMIC CONDITIONS

Data for US Census 2000 Block Groups were used to evaluate socioeconomic conditions in the study area. Only those Block Groups through which the Refined On-alignment passes were assessed. The following Block Groups were evaluated:

050501-1	050501-2	050502-1
050502-3	050601-1	

Some assumptions were made when using geographic boundaries to obtain census data. The smallest geographical area for which census data are available is Blocks. There are over 100

Table 4: Impacts by Alternative

	No-build	Refined On-alignment	Yellow 1 ¹	Yellow 2 ¹	Orange ¹	Blue ¹	Gold ¹	Green ¹	Brown ¹	Purple ¹
Natural Resources										
Wetlands (acres)	0	14.6	37.1	43.4	48.0	48.0	49.2	49.4	44.9	49.7
Waters of the US (linear feet)	0	2423	17,405	16,732	12,129	18,051	18,287	17,572	20,020	20,013
Subaqueous lands (linear feet)	0	1924	12,740	12,205	9,108	11,814	12,037	11,909	11,375	10,965
Forestland: 2007 Land Use (acres)	0	28	64	65	122	71	80	70	102	104
Historic Resources										
Number of Historic Properties within Study Area ²	0	11	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined
Number of Properties Potentially Subject to Section 4(f) (subset of above) ³	0	1	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined
Number of Cemeteries ⁴	0	0	2	2	4	2	2	2	2	2
Archaeological Resources										
Number of Known Archaeological Sites in the Limit of Disturbance ⁵	0	7	7	6	12	7	7	7	7	6
Prehistoric Sensitivity in the Limit of Disturbance ⁶										
High and Moderate Sensitivity Area (acres / %)	0	35 (9.4%)	81 (11.0%)	79 (11.0%)	162 (23.3%)	78 (10.4%)	77 (9.8%)	77 (11.0%)	97 (13.0%)	92 (13.3%)
Low and Slight Sensitivity Area (acres / %)	0	337 (90.6%)	656 (89.0%)	638 (89.0%)	532 (76.7%)	674 (89.6%)	705 (90.2%)	625 (89.0%)	646 (87.0%)	600 (86.7%)
Early Historic-Period Sensitivity in the Limit of Disturbance ⁷										
High and Moderate Sensitivity Area (acres / %)	0	4 (1.1%)	13 (1.8%)	13 (1.8%)	20 (2.9%)	10 (1.3%)	10 (1.3%)	11 (1.6%)	15 (2.0%)	15 (2.2%)
Low and Slight Sensitivity Area (acres / %)	0	368 (98.9%)	724 (98.2%)	705 (98.2%)	674 (97.1%)	743 (98.7%)	773 (98.7%)	693 (98.4%)	728 (98.0%)	678 (97.8%)
Later Historic-Period Sensitivity in the Limit of Disturbance ⁸										
Extant Locations ⁹	0	19	26	26	56	24	22	24	23	21
High and Moderate Sensitivity Locations	0	98	110	110	48	78	77	76	76	75
Low Sensitivity Locations	0	21	21	21	2	19	18	18	18	17
Section 4(f) Properties										
Number of Publicly-Owned Parks and Recreation Areas	0	0	0	0	0	0	0	0	0	0
Number of Publicly-Owned Wildlife and Waterfowl Refuges	0	0	0	0	0	0	0	0	0	0
Number of State-Managed Wildlife Preserves (acres)	0	0	0	0	0	0	0	0	0	0
Number of Historic Properties ³	0	1	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined
Rare, Threatened and Endangered Species										
Potential Rare, Threatened and Endangered Species Areas (acres) ¹⁰	0	344.0	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined
Other Considerations										
Ten-Year Agricultural Districts (number of properties/acres)	0/0	0/0	2/7	2/7	7/41	2/7	2/7	2/7	2/7	2/7
Permanent Agricultural Preservation Easements (number of properties/acres)	0/0	0/0	0/0	0/0	2/2	0/0	0/0	0/0	0/0	0/0
State Resource Areas	13	13	13	13	42	2	2	2	24	24
State Natural Areas	1	1	1	1	26	1	1	1	1	1
Property Impacts/ Access Rights										
Complete Acquisitions/Purchase of Access and Development Rights (affected properties)	0	55	67	67	52	94	87	84	92	82
Relocations										
Residential (existing residences)	0	18	34	28	37	58	57	51	53	53
Agricultural	0	12	20	18	13	22	20	19	24	19
Commercial	0	24	13	21	3	14	10	14	15	10
Schools or Churches	0	1	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined
Partial Acquisition/Modified Access (number of affected properties)	0	227	165	164	38	105	98	106	89	98
Residential	0	95	85	97	24	69	63	68	47	63
Agricultural	0	55	25	17	8	18	17	16	19	17
Commercial	0	74	55	50	5	18	18	22	23	18
Schools or Churches	0	3	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined
Partial Acquisitions and Purchase of Access/Development Rights	0	30	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined
Total Properties affected (number of)	0	282	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined
Total Properties affected (total acres)	0	249	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined	undetermined
Cost										
Preliminary anticipated cost range for construction (millions - 2012 dollars)	0	\$227 - \$278	\$335 - \$409	\$365 - \$446	\$256 - \$312	\$261 - \$319	\$310 - \$378	\$259 - \$317	\$317 - \$387	\$355 - \$433
Engineering										
Existing US 113/SR 1 length (miles)	10.3	10.3	10.6	10.6	3.6	6.8	5.9	6.8	6.8	5.9
Proposed US 113 off-alignment length (miles)	0.0	0.0	0.0	0.0	9.0	4.6	5.5	4.4	5.3	6.2
Total length of alternative (miles)	10.3	10.3	10.6	10.6	12.6	11.4	11.4	11.2	12.1	12.1

1 Upon selection of the Refined On-Alignment Alternative in June 2007, the remaining build alternatives were dropped from consideration. It was determined that the impact data gathered to date for natural resources and right-of-way were sufficient to support that decision. As a result, some impact quantities associated with the preliminary build alternatives were computed for this matrix.

2 Historic properties are individual resources and districts listed on or determined eligible for the National Register of Historic Places; eligibility status is based on consultant recommendations, reviewed by DeIDOT and SHPO staff; consensus has been reached on all recommendations. Study area encompasses all properties on tax parcel centerline of the alternative.

3 Section 4(f) applies to historic properties directly impacted by an alternative; properties evaluated for direct impacts include any property within the limit of disturbance for the alternative and also include situations where demolition of any of the contributing components to the resource is proposed.

4 Includes only those cemeteries directly impacted by an alternative.

5 Archaeological sites on file with SHPO; most have not yet been evaluated for National Register eligibility; note that the limit of disturbance (here and in subsequent rows) does not include future stormwater management and other needs such as wetland mitigation sites.

6 GIS inductive model based on known sites and environmental parameters, intended as a planning tool for estimating the relative likelihood for sites to be present in the limit of disturbance; note that potential archaeological significance has not been assessed; current as of October 2011.

7 GIS model based on environmental parameters and current theory regarding early historic settlement, intended as a planning tool for estimating the relative likelihood for sites to be present in the limit of disturbance; note that potential archaeological significance has not been assessed; current as of October 2011.

8 Point locations for properties derived from historical maps and documents and assessed for likelihood of survival based on subsequent disturbances; note that potential archaeological significance has not been assessed; includes a 300-foot buffer around each point to account for mapping inaccuracies.

9 Standing historic-period structures; current as of October 2012.

10 Anticipated impacts to rare, threatened and endangered species based on coordination to date with DNREC. Detailed evaluation and coordination with DNREC and US Fish and Wildlife Service is continuing, and these data are not exhaustive. These data represent known occurrences of 10 of RTE species, not habitat for RTE



Blocks in the study area, and including all of the Blocks in the tables for this document would be unwieldy. Therefore, Block Groups, the next-largest geographical unit, were used. Even though the Block Groups that comprise the study area are not entirely contained within its boundaries, for the purposes of this document, data for the entire Block Groups are used to summarize and evaluate impacts. The study area Block Groups are depicted on **Figure 11**.

When this study began, the 2000 US Census data were the most current available; however, portions of the 2010 census data were released in early 2011. As of December 2011, only the demographic information is available at the Block Group level. Therefore, population, race, and Hispanic/Latino data have been updated based on the 2010 Census. The economic data (income, population in poverty, etc.) for the Block Groups are based on 2000 Census data. It is unlikely that the 2010 economic data will be available for inclusion in the final EA.

Additionally, the 2010 Census renumbered/modified some of the block groups in Sussex County. In the Georgetown study area, all block groups were renumbered, even though most of the boundaries remain the same. One area that used to be covered by one Block Group has now been broken out into two separate Block Groups.

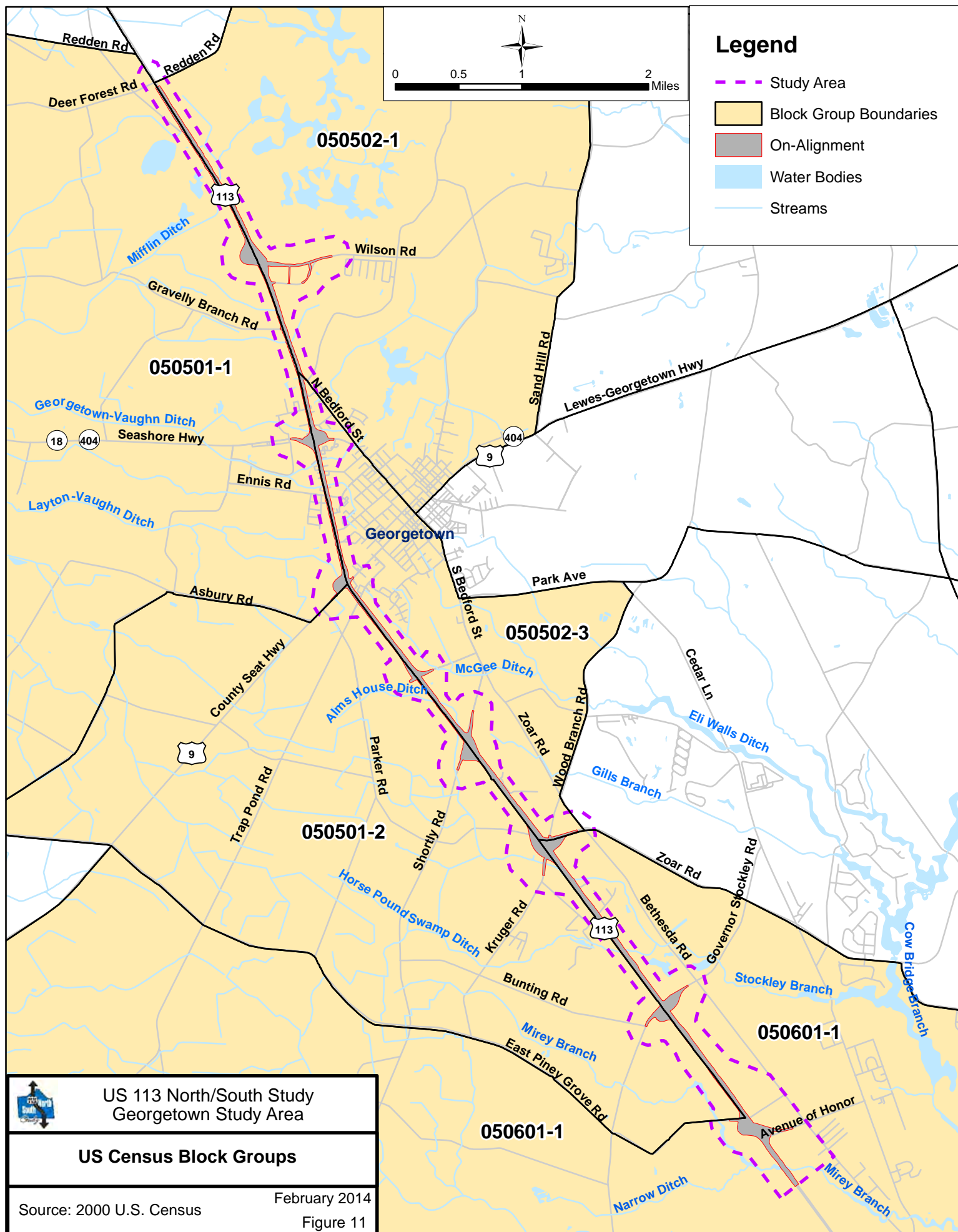
After consideration of the issues described above, FHWA directed the project team to use only Census 2000 data in this document. This would provide a document that is both consistent and reader-friendly. The Census 2010 data have been reviewed, and while the overall population is higher, the percentages of minorities and Hispanics/Latinos are consistent with the 2010 data.

3.2.1 Property Impacts

A complete acquisition refers to a property that would be purchased in its entirety based on impacts from the proposed roadway improvements. A partial acquisition refers to a property where only a portion would be purchased. A relocation occurs when a structure, such as a home or business, exists on a parcel that would be subject to complete acquisition. Additional compensation is provided for relocations. Denial of access to a parcel requires DelDOT to acquire the parcel.

Property impacts for the study area are shown in **Table 4**. The No-build Alternative would not result in property impacts. The Refined On-alignment Alternative would require 55 complete acquisitions (18 residences, 12 agricultural properties, 24 commercial facilities, and one church). Compared to the original On-alignment Alternative, the Refined On-Alignment Alternative requires fewer residential and agricultural relocations, but more commercial acquisitions. It is unknown if the original On-alignment Alternative would have impacted any churches or other community facilities.

As the need for property is identified, impacted property owners would be contacted regarding potential acquisitions, and they would be fairly compensated for the required acreage. Compensation would also be provided for farmland that may become unsuitable or inaccessible for farming as a result of the roadway improvements. For relocations, owners would be provided assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act, as amended, and DelDOT's Relocation Assistance Program. **Appendix B** contains the relocation plan DelDOT has prepared for the property owners who would be impacted by this project.





3.2.2 Environmental Justice

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” requires Federal agencies to identify and address any disproportionately high and adverse impacts to minority and/or low-income populations resulting from alternatives under consideration. The agencies must also provide opportunities for participation in the public involvement process.

Low-Income Populations/Poverty Levels

According to FHWA Order 6640.23, low income is defined as “a person whose household income is at or below the Department of Health and Human Services (HHS) poverty guidelines.” However, the HHS poverty website states that the US Census Bureau, and not HHS, compiles statistics on poverty. Therefore, Census Bureau data were used to provide poverty percentages in this document. The most recent poverty and income data by block group are from 1999, so poverty level data from that year were used for this document. The Census Bureau poverty level threshold for a family of four in 1999 was \$17,029. **Table 5** shows the median income and the population in poverty for Sussex County and the study area in 1999.

Table 5: Median Income and Percentage in Poverty in 1999

Geographic Area/ Block Group	Median Household Income (in dollars)	Population in Poverty (in percent)
Sussex County	\$31,875	25.1%
050501-1	\$42,171	4.6%
050501-2	\$46,250	1.0%
050502-1	\$41,131	28.0%
050502-3	\$28,587	16.6%
050601-1	\$40,625	6.5%
Study area average	\$39,753	AVG - 11.3%

Source: US Census, 2000

Table 6 summarizes the impacts to individual properties by block group. The Refined On-alignment Alternative would have residential impacts in all five block groups in the study area. The greatest number of impacts would occur in the block group with the lowest percentage of the population in poverty (050501-2), so there would be no disproportionate impacts to low income populations.

Table 6: Residential Impacts by Block Group

Block Group	Population in Poverty	Minority (non-white)	Minority (Hispanic or Latino)	Properties Impacted
050501-1	4.6%	2.1%	0.0%	26
050501-2	1.0%	9.8%	0.6%	31
050502-1	28.0%	7.4%	1.3%	17
050502-3	16.6%	40.4%	5.2%	21
050601-1	6.5%	23.5%	2.7%	18
Total	AVG - 11.3%	AVG - 21.4%	AVG - 2.6%	113



Minority Populations

Sussex County is 19.7 percent minority (non-white), as defined by the US Census Bureau. Over 4 percent of the population claims Hispanic or Latino heritage, which is evaluated as a separate category. The average minority population in the study area block groups is 21.4 percent, while the average Hispanic or Latino population is 2.6 percent. **Table 7** summarizes the racial and ethnic distribution in the study area.

Table 7: Race and Ethnicity by US Census Block Group

Geographic Area/Block Group	Total Population	White	Non-White or More than One Race	Percent Minority	Hispanic or Latino	Percent Hispanic or Latino
Sussex County	156,638	125,857	30,781	19.7%	6,915	4.4%
050501-1	1,750	1,714	36	2.1%	0	0.0%
050501-2	1,403	1,265	138	9.8%	9	0.6%
050502-1	1,188	1,100	88	7.4%	16	1.3%
050502-3	3,310	1,973	1,337	40.4%	173	5.2%
050601-1	2,066	1,581	485	23.5%	56	2.7%
Total	9,717	7,633	2,084	AVG - 21.4%	254	AVG - 2.6%

Source: US Census, 2000

Note: The US Census allowed people to claim more than one racial or ethnic group.

Residential impacts by block group are shown in **Table 6**. As shown in **Table 7**, the block group with the most impacts (050501-2) has minority percentages that are lower than the study area averages, so the Refined On-alignment Alternative would not cause disproportionately high and adverse impacts to minority populations in the study area.

Business Impacts

The No-build Alternative would not directly affect businesses. However, the continuing congestion that would result from this alternative would adversely impact travel times and access, thus decreasing efficiency for businesses.

Businesses would be adversely impacted during construction of the Refined On-alignment Alternative due to lane closures along US 113. However, completion of this alternative would increase connectivity and decrease congestion, thereby improving the local economy.

3.3 COMMUNITY FACILITIES AND SERVICES

The Sussex County Airport and Industrial Airpark

This facility, owned by the Sussex County Council, is shown on **Figure 12**. The airport accommodates corporate and general aviation aircraft. It provides maintenance and refueling services, and has amenities to help pilots and passengers rest and relax. The airpark consists of 175 acres; it leases sites ranging from two to 6.5 acres. Full utility service is available and security guards are provided.



The No-build Alternative would not directly impact the airport and airpark, but the increased congestion that would result from this alternative would inhibit access to the facility. The Refined On-alignment Alternative would provide a controlled access highway with improved traffic flow in close proximity to the airport. This could potentially encourage future investments in the airport and airpark, and is consistent with the principles of the Partnership for Sustainable Communities discussed in **Chapter 1.3.5**.

Neighborhoods

Neighborhoods in the study area range from older single family detached houses, primarily in Georgetown, to newer subdivisions located closer to the town limits. There are dozens of newly constructed neighborhoods, mainly outside of Georgetown.

The No-build Alternative would not directly impact neighborhoods. However, the increased congestion along existing US 113 and adjacent streets would make it more difficult to travel between neighborhoods and may create difficulty traveling between residences and businesses. In addition, congestion on arterial routes could result in increased cut-through traffic in some neighborhoods.

The Refined On-alignment would place a limited-access roadway through Georgetown, bisecting the town. By using bridges and grade separations, most of the existing road networks would continue to be operational, ensuring accessibility to neighborhoods that are bisected by US 113.

Schools

Figure 12 shows that the only primary or secondary school in the study area is North Georgetown Elementary School on N. Bedford St. It would not be impacted by this project. Delaware Technical and Community College (Delaware Tech) is on SR 404, west of US 113. It offers associates, bachelors, and certificate programs. Delaware Tech also serves as a satellite campus for the University of Delaware, Wilmington University, and Delaware State University, which offer bachelor, master, and doctoral degree programs.

The Refined On-alignment Alternative would impact the athletic facilities affiliated with Delaware Tech. The institution would receive financial compensation for the impacts. Access modifications would also be required at Delaware Tech.

Local school bus routes may be affected by the project. Under the No-build Alternative, congestion would increase along bus routes. The Refined On-alignment Alternative would primarily affect bus routes by improving safety and travel times on US 113. However, buses may experience some delays during construction.

Religious Institutions

As shown on **Figure 12**, there are five places of worship in the Georgetown study area. The proposed Refined On-alignment Alternative would require full acquisition of the Eastern Shore Community Church, located at 18793 Dupont Boulevard. The impact is based on the proximity of the church access to the northbound US 113 on-ramp from the Wilson Road interchange. Relocation assistance would be provided. First Baptist Church and Calvary Baptist Church would each require minor access modifications.



Cemeteries

Figure 12 shows that Woodlawn Memorial Park, located on Dupont Boulevard, is in the study area. There would be impacts to the parcel, but no graves would be impacted. Financial compensation would be provided for the lost land.

Libraries

There are no public libraries in the study area.

Emergency Services and Health Care

The Delaware State Police Troop 4 facility is located on the west side of US 113 at the intersection of Shortly Road/S. Bedford Street. This facility is depicted on **Figure 12**. An exclusive emergency access to US 113 would be provided for the facility. There are no hospitals, fire stations, or other police stations in the study area.

Under the No-build Alternative, congestion would increase, slowing responses by emergency services personnel. With the Refined On-alignment Alternative, a reduction in access points may make it more difficult to reach those in need of emergency assistance; however, this concern must be balanced with the benefits to emergency responders as a result of this project. Reducing congestion and conflict points would likely result in fewer accidents. When accidents do occur, the creation of a limited access facility would reduce congestion and would improve emergency response times. However, responders may experience some delays during construction.

Parks and Recreation Facilities

The only public recreational facility in the study area is the Jester Tract of the Redden State Forest, located just south of the southern intersection of McColleys Chapel Road and US 113. The Jester Tract is shown on **Figure 12**. It offers a variety of outdoor activities, but would not be impacted by this project. The Refined On-alignment Alternative would not require the use of recreational resources protected under Section 4(f) of the DOT Act of 1966 implemented per 23 CFR 774.

3.4 CULTURAL RESOURCES

This section is intended to satisfy the applicable requirements of Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. As such, this section would be recognized as implementing the regulations of the Advisory Council for Historic Preservation (ACHP) (36 CFR Part 800).

Using authority delegated by FHWA, DelDOT notified the State Historic Preservation Office (SHPO) and the ACHP that the agency intended to use the NEPA process for Section 106 purposes (per 36 CFR 800.8(c)) for the undertaking. This June 29, 2010 notification letter is included in **Appendix D**. Project initiation and consultation with federally recognized Native American tribes in Delaware has also taken place via nation to nation consultation, initiated by FHWA, with the Delaware Nation, Stockbridge Munsee Community, and The Delaware Tribe of Indians. Section 106 correspondences are included in **Appendix D**. On June 21st, 2013, the Stockbridge-Munsee Community indicated to FHWA that they were not claiming Delaware an area of interest. As a result, as this project moves forward and until such time may be warranted,



the Stockbridge-Munsee Community is no longer part of the nation to nation consultation regarding this project and undertaking. To date, none of the federal tribes has requested to be a signatory to the administration of Section 106 under a Memorandum of Agreement (MOA) (**Appendix D**). FHWA will continue their consultation on a nation to nation basis with the two federally recognized tribes (Delaware Nation, and Delaware Tribe of Indians). DelDOT will also initiate and continue any consultation with the two non-federally recognized state tribes (Nanticoke Indian Tribe, and the Lenape Indian Tribe). No other consulting parties have been identified.

All historic architectural properties that are listed in or are eligible for listing in the National Register of Historic Places (National Register) have been identified within the Area of Potential Effect (APE) for architectural resources. During NEPA scoping, environmental analysis, agency coordination, and preparation of the EA, DelDOT has consulted with the SHPO about the project's effects on these historic properties. As detailed in **Chapter 4**, consultation with the public (including impacted or involved historic property owners) has been ongoing throughout the planning process. Proposed measures to avoid, minimize, or mitigate the undertaking's effects on historic properties are included in this section or within other sections of the EA. A Memorandum of Agreement (MOA) has been developed (**Appendix D**) to formalize Section 106 consultation, resolve adverse effects, and present a mitigation plan for all historic properties, including unidentified archaeological sites.

Between July 2005 and August 2010 architectural properties in the Georgetown study area were evaluated for eligibility for inclusion in the National Register. In conjunction with this effort, the APE for all architectural resources has been defined. The APE is roughly defined as all tax parcels within approximately 600 feet of the Refined On-alignment Alternative centerline (see **Figure 13**). The APE was verified and adjusted when more specific project development measures became available. Based on plan concepts of the Refined On-alignment Alternative, it is presumed that the APE on **Figure 13** would adequately address the footprint of future archaeological studies that may occur in a staged identification approach. This APE does not include any off-site wetland mitigation areas, which would be defined at a later date.

If off-site wetland mitigation sites or other project changes are identified later in time, DelDOT is committed to updating the APE, identifying any additional historic properties, and assessing the project's effect on such properties, as provided for in the Section 106 MOA.

3.4.1 Architectural Identification

The identification and evaluation of architectural resources began in July 2005. Based on the project overview, National Register evaluations for the Georgetown APE were presented in a series of draft reports beginning April 2006. Comments from DelDOT and SHPO, as well as the identification of additional resources along revised alignment segments, resulted in several draft reports and submittals as supplements.

Beyond resource agency meetings and other individual office meetings, DelDOT, SHPO, and FHWA staff conducted multiple field tours between August 2006 and December 2011 to review and discuss the final results of the evaluation-level study of architectural resources, validate the APE, and confirm the Criteria of Adverse Effect applied to historic properties with respect to the Refined On-alignment Alternative. Suggested mitigation measures, which are described in the

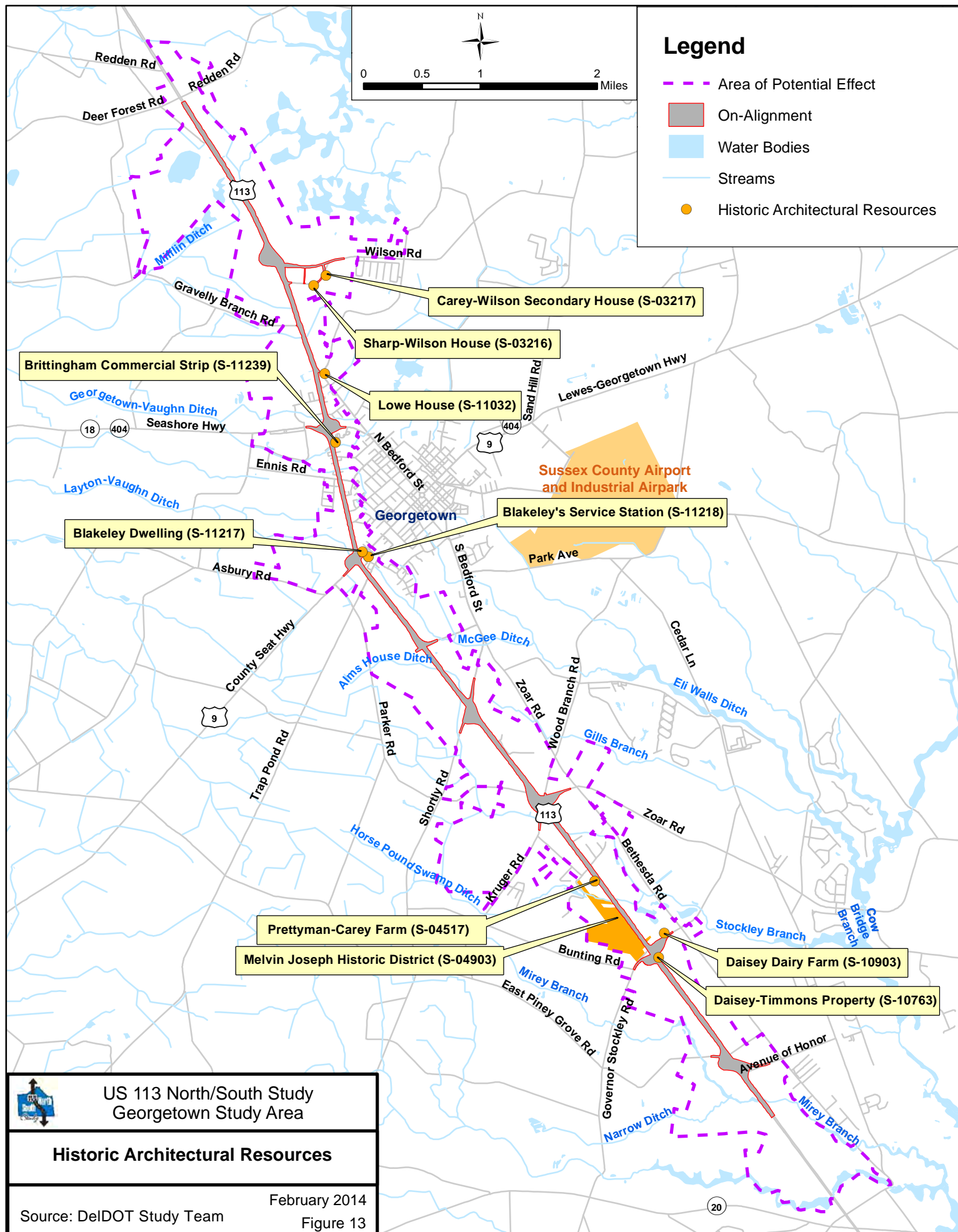


MOA, were also discussed. The results of the architectural surveys are presented in the final report, *Evaluation of National Register Eligibility for Architectural Properties in the Georgetown Study Area, US 113 North/South Study*, which can be viewed at http://deldot.gov/archaeology/us113ns_study_histpres/georgetown/index.shtml

A total of 131 individual properties and two historic districts subject to either direct or indirect impacts were identified within the Georgetown APE. Based on DelDOT and SHPO review of eligibility recommendations and those properties still extant during consultation in the assessment of adverse effects, the architectural report concluded that nine individual properties and one historic district are National Register eligible. The properties within the APE of the Refined On-alignment Alternative are listed in **Table 8** and shown on **Figure 13**.

Table 8: Architectural Historic Properties within the APE

Cultural Resources Survey #	Property Name	National Register Status	NR Criterion	Property Type
S-03216	Sharp-Wilson House	Eligible	C	I-house
S-03217	Carey-Wilson Secondary House	Eligible	C	hall plan with loft house
S-04517	Prettyman-Carey House	Eligible	C	L-plan house
S-04903	Melvin Joseph Historic District	Eligible	B, C	historic district
S-10763	Daisey-Timmons Property	Eligible	C	Colonial Revival
S-10903	Daisey Dairy Farm	Eligible	C	agricultural complex; bungalow
S-11032	Lowe House	Eligible	C	bungalow
S-11217	Blakeley Dwelling Complex	Eligible	C	domestic complex; bungalow
S-11218	Blakeley's Service Station	Eligible	A, C	automobile service station
S-11239	Brittingham Commercial Strip	Eligible	A	commercial building





3.4.2 Architectural Property Effects

In accordance with the implementing regulations of Section 106, the criteria of adverse effect were applied to the 10 historic properties listed in **Table 8**. An effect is defined as an “alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register” (36 CFR part 800.16[i]). The effect is adverse when the alteration of a qualifying characteristic occurs “in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property’s eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative” (36 CFR 800.5(a)(1)).

Adverse effects on historic properties may include, but are not limited to:

- (i) Physical destruction of or damage to all or part of the property;
- (ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary’s Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;
- (iii) Removal of the property from its historic location;
- (iv) Change of the character of the property’s use or of physical features within the property’s setting that contribute to its historic significance;
- (v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property’s significant historic features;
- (vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
- (vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property’s historic significance (36 CFR Part 800.5 [a][2]).

Based on direct consultation with the SHPO, and with the additional involvement of the Sussex County Planning Department, **Table 9** summarizes the effect to each historic property.



Table 9: Effects on Historic Properties within the APE

Property	NR Criterion	Effect	Proposed Measures to Mitigate Adverse Effects
Sharp-Wilson House (S-03216)	C	No Adverse	None
Carey-Wilson Secondary House (S-03217)	C	No Adverse	None
Prettyman-Carey House (S-04517)	C	Adverse but No Adverse for visual	None
Melvin Joseph Historic District (S-04903)	B, C	Adverse	Section 106 consultation ongoing
Daisey-Timmons Property (S-10763)	C	Adverse: cumulative in nature and foreseeable	Consider storm windows or improved insulation; consider movement of dwelling to be set back; vibration monitoring; consult on access changes with property owner and implement with project; reconsider interchange design or providing design exceptions
Daisey Dairy Farm (S-10903)	C	No Adverse	None
Lowe House (S-11032)	C	No Adverse	None
Blakeley Dwelling Complex (S-11217)	C	Adverse	Section 106 consultation ongoing
Blakeley's Service Station (S-11218)	A, C	Adverse	Add signage to U.S. 113 for commercial services
Brittingham Commercial Strip (S-11239)	A	Adverse but No Adverse for visual	None

3.4.3 Archaeological Resources

A historic context and archaeological sensitivity model were prepared for the US 113 Georgetown study area. Relevant information for prehistoric and early historic archaeological sensitivity is presented in the *US Route 113 North/South Study Archaeological Sensitivity - New CRS Properties - US 113/DuPont Highway Historic Context Cultural Resource Management Document*.

The archaeological sensitivity model was prepared as a planning tool to assist in the development of the designs for the various project alternatives and to aid in the assessment of their relative potential impacts on archaeologically sensitive areas. Both prehistoric (referring to pre-contact Native American history) and historic archaeological potential are considered in this model. Characterization of the environment has been accomplished using data available in Geographic Information System (GIS) format, and GIS has been used to compare the relative significance of the criteria within the various parts of the project area. Historic and modern ground disturbances were modeled to qualify the areas of archaeological potential relative to their likely integrity. The results of the model are zones characterized by their sensitivity for prehistoric and historic



archaeological resources. These areas were shown in a January 2005 report and reviewed by archaeologists on staff at DelDOT and the SHPO. In order to protect known and potential sites, maps are not provided here. Section 304 of the NHPA, 36 CFR Part 800.11 of the ACHP's regulations implementing Section 106 of that same Act, and Delaware Code Title 7, Chapter 53, § 5314 permit the restriction of access to information on the location and nature of archaeological resources.

The archaeological sensitivity model was overlaid with the proposed limit of disturbance to evaluate the potential consequences of the Refined On-alignment Alternative, thus determining the areas of each sensitivity level affected. The results are shown in **Table 4**, the impacts matrix.

Based on a cursory data base review, seven known archaeological sites would intersect the Limit of Disturbance for the Refined On-alignment Alternative. They have not been evaluated for National Register eligibility.

- S-03218 (7S-F-103), "Buck House," is a surface scatter of historic-period artifacts identified in 1991 during a pedestrian survey. Materials identified included glass, whiteware, porcelain, stoneware, redware, brick, and coal, none of which appear to have been collected.
- S-03234 (7S-F-073), "Thomas Shimp House," is a multi-component site in the front yard of a c. 1900 farmhouse that was moved west, out of the US 113 right-of-way, in 1962. The site was identified in 1991 during Phase I and Phase II archaeological survey and testing undertaken by Berger & Associates. Material recovered from 17 shovel tests and two 1 x 2 meter units included historic-period artifacts and "a few" prehistoric flakes, which were curated at the Island Field Museum (Accession No. 92/190).
- S-06959 (7S-F-047), "Mirey Branch IV," was identified as a Woodland I Base Camp during a "brief" pedestrian survey undertaken by the University of Delaware Center for Archaeological Research in 1986. Materials recovered from the site included a triangle, fire-cracked rock, and argillite flakes, which were curated at the Island Field Museum (Accession No. 86/40). Several other potentially associated sites (7S-F-044A [Mirey I], 7S-F-044B [Mirey I], 7S-F-045 [Mirey II], 56 7S-F-056 [Mirey III], and 7S-F-063) are located immediately west and north of this site, but this is the only site that intersects the proposed Limit of Disturbance.
- S-07958 (7S-F-068), "Donovan," is a prehistoric and historic-period site identified during a Phase 1 survey of the US 113 right-of-way in 1988. Materials were recovered from four shovel tests and included jasper, quartz, ironstone, and chert flakes, a tin-glazed earthenware sherd, and a cut nail, none of which appear to have been collected.
- S-08435 (7S-F-098) is a surface scatter of historic-period artifacts identified during a pedestrian survey in 1991. Materials noted included whiteware, stoneware, redware, brick, sewer pipe, and asbestos shingle, none of which appear to have been collected.
- S-08452 (7S-F-094) is a surface scatter of historic-period artifacts identified during a pedestrian survey in 1991. Artifacts noted included glass, whiteware, redware, stoneware, and a porcelain insulator, none of which appear to have been collected.



- S-08685 (7S-F-100) is a historic-period site identified in 1991 during a pedestrian survey. It consisted of a 1-1/2 story dilapidated house overgrown with weeds and trees, and two outbuilding foundations nearby. No artifacts are noted on the inventory form.

Based on a predictive model to estimate the prehistoric and early historic-period archaeological sensitivity of the area, the Refined On-alignment Alternative would impact 35 acres of land within a high and moderate prehistoric sensitivity zone and four acres of land within a high and moderate early historic-period sensitivity zone. In addition, a sensitivity study for later historic-period archaeological resources resulted in the identification of 117 locations within the Refined On-alignment Alternative where there is a high likelihood for historic-period archaeological deposits. Based on the archaeological predictive model, adverse effects to archaeological sites are expected under 36 CFR 800.5(a)(2)(i) and (iii). DelDOT is committed to performing the necessary archaeological analysis to fully determine National Register eligibility for archaeological resources in the Georgetown APE.

Since adverse effects to historic properties are expected with the Refined On-alignment Alternative, DelDOT, SHPO, and FHWA have written a Section 106 MOA to establish the process for identifying archaeological resources within the APE for the Refined On-alignment Alternative (**Appendix D**). This would allow DelDOT to evaluate the potential eligibility of all archaeological resources for the National Register. If eligible archaeological resources are discovered, DelDOT and FHWA would consult with the SHPO to determine if the resources would be adversely affected, and if so, they would look for ways to avoid impacts or minimize effects. If the effects cannot be avoided, traditional or alternative forms of archaeological mitigation would be utilized as specified in the MOA.

3.4.4 Summary and Mitigation Measures

Ten historic properties within the APE for the Refined On-alignment Alternative were identified as the result of an architectural survey and evaluation in consultation with DelDOT, FHWA, and SHPO. Most of the properties would experience an adverse effect in the form of increased noise levels or visual effects from a Section 106 perspective. Based upon the current concept design for the Refined On-alignment Alternative, none of the identified historic properties would be physically impacted. It is also anticipated that no architectural properties would be temporarily encroached upon, except for temporary maintenance of traffic devices during construction. To date, the National Register eligibility of the known archaeological sites within the APE has not yet been determined and additional investigation is needed.

Proposed mitigation measures for “adverse effects” are outlined in the Section 106 MOA. The MOA between the FHWA, DelDOT, and the SHPO also outlines steps to be taken to complete the Section 106 consultation process with regards to archaeological sites as well as any additional work should it be necessary for wetland mitigation programs and disposition of excess property. Archaeological data recovery, public outreach, preservation in place, consulting party protocol, and other mitigation measures are discussed and administered under the MOA (**Appendix D**).



3.5 AIR QUALITY

"Air Pollution" is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants degrade the atmosphere by reducing visibility, damaging property, reducing the productivity or vigor of crops or natural vegetation, or by adversely affecting human or animal health.

Eight air pollutants have been identified by the EPA as being of concern nationwide: carbon monoxide (CO), sulfur oxides (SO_x), hydrocarbons (HC), nitrogen oxides (NO_x), ozone (O₃), lead (Pb), particulate matter with a size of 10 microns or less (PM₁₀), and particulate matter with a size of 2.5 microns or less (PM_{2.5}). These pollutants, with the exception of HC, are collectively referred to as criteria pollutants for which National Ambient Air Quality Standards (NAAQS) have been established.

This project is entirely within Sussex County, which has been designated as being a non-attainment area for ozone by the EPA. Sussex County has not been designated by the EPA as being in non-attainment for carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, fine particulate matter or coarse particulate matter.

The EPA issued a final rule designating nonattainment areas for the 2008 ozone NAAQS that became effective July 20, 2012. Through this process Sussex County was designated as a "marginal nonattainment" area. According to FHWA and EPA regulations, nonattainment counties and areas have a "one-year grace period" in which to conduct a quantitative conformity analysis and make a conformity determination. That one-year grace period for Sussex County ended July 20, 2013. DelDOT submitted an updated conformity analysis and determination and, on July 19, 2013, FHWA and FTA approved that submission. The US 113 Georgetown Area Project was not included in this determination, as the project status in the Capital Transportation Plan was not a "trigger" for such analysis to occur.

On March 10, 2006, EPA issued amendments to the Transportation Conformity Rule to address localized impacts of particulate matter: "PM_{2.5} and PM₁₀ Hot-Spot Analyses in Project-level Transportation Conformity Determinations for the New PM_{2.5} and Existing PM₁₀ NAAQS (71 FR 12468)." These rule amendments require the assessment of localized air quality impacts of Federally-funded or approved transportation projects in PM₁₀ and PM_{2.5} nonattainment and maintenance areas deemed to be projects of Air Quality Concern. Projects that require hotspot analysis for PM_{2.5} and PM₁₀ are those projects that are projects of Air Quality Concern as enumerated in 40 CFR 93.123(b)(1).

The Georgetown Area project does not meet the criteria set forth in 40 CFR 93.123(b)(1)(i), as amended, to be considered a project of air quality concern because it affects an expanded highway that does not have a significant increase in diesel vehicles. Therefore Clean Air Act and 40 CFR 93.116 requirements for PM_{2.5} and PM₁₀ were met without a hot-spot analysis, since such projects have been found to not be of air quality concern under 40 CFR 93.123(b)(1).

In addition to the criteria air pollutants for which there are NAAQS, the EPA also regulates air toxics. The EPA has designated seven prioritized Mobile Source Air Toxics (MSAT), which are known or probable carcinogens or can cause chronic respiratory effects. The prioritized MSATs



are: acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter.

In December of 2012, FHWA issued an interim guidance update titled “Guidance on Air Toxic Analysis in NEPA Documents”, which requires analysis of MSAT under specific conditions. The update reflects the recent implementation of the EPA MOVES emission model for estimating MSAT emissions from mobile sources along with updates of scientific research in the MSAT arena.

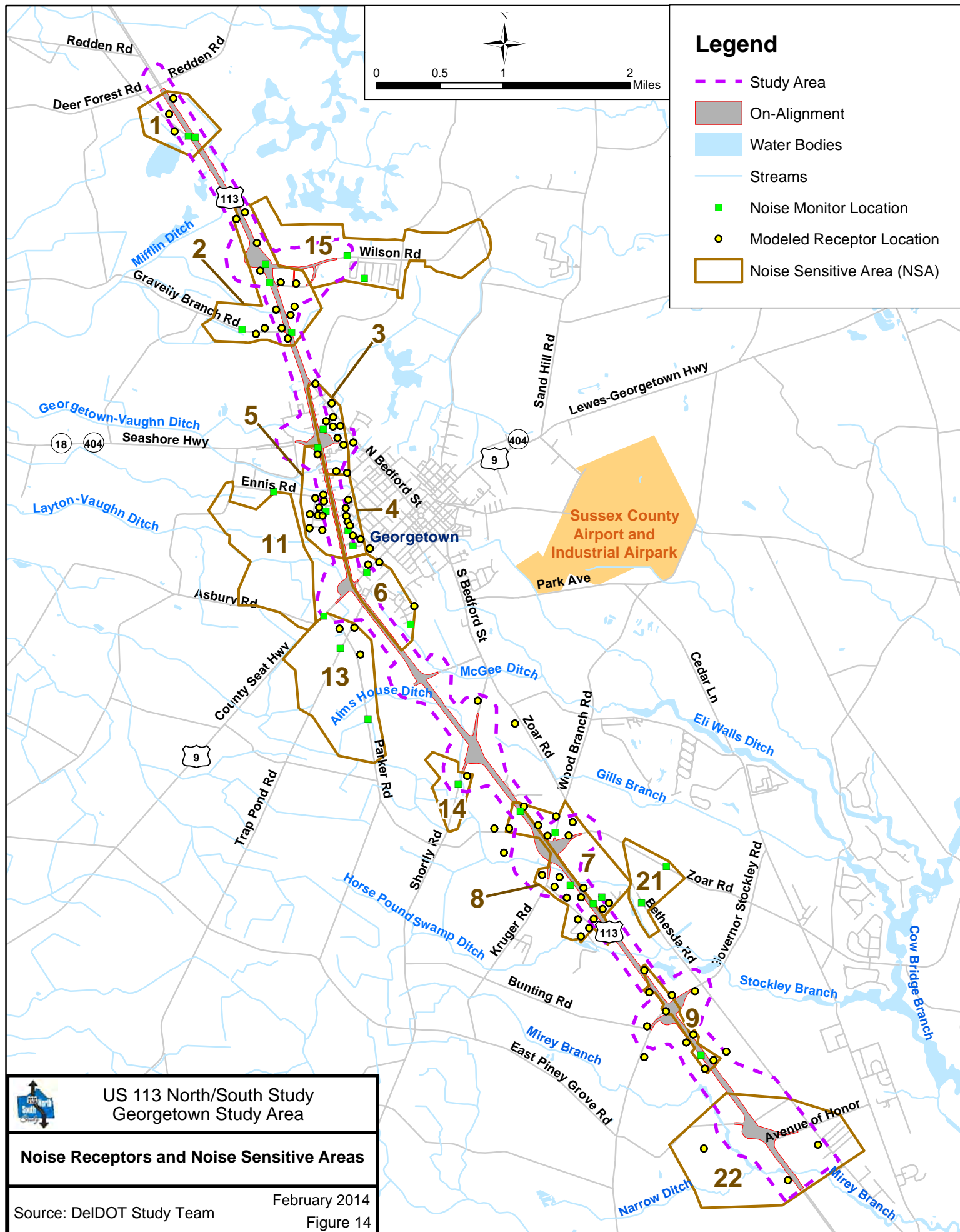
Consistent with this recent guidance, U.S. 113 Georgetown Area project is a project with “low potential MSAT effects” because design year traffic is projected to be less than the 140,000 to 150,000 annual average daily traffic (AADT) thresholds identified in FHWA’s guidance. A qualitative MSAT analysis concluded that, for the design year build scenarios on the roadway network in the project area, regional MSAT emissions are expected to be significantly lower than those emitted today, even when taking into account the projected increase in vehicle miles traveled. Additionally, the implementation of EPA’s vehicle and fuel regulations will result in significantly lower MSAT levels for the area in the future than exist today. EPA’s regulations are projected to reduce annual priority MSAT emissions by 83 percent between 2010 and 2050, despite the anticipated VMT increase of 102 percent over that time period.

The operation of heavy equipment would have minor, temporary impacts on air quality during construction of the Refined On-alignment Alternative. The impact occurred during construction would be considered minor as the construction duration of the project is not anticipated to exceed five years at any single location. According to CFR Part 93.123(c)5, CO, PM 2.5 and PM 10 hot-spot analyses are not required for construction-related activities which cause temporary increases in emissions. The primary impact would be wind-blown soil and dust in active construction zones. A secondary source would be increased levels of machinery exhaust pollutants. Measures would be taken to reduce levels of fugitive dust and windblown soil generated during construction by wetting disturbed soils, staging soil disturbing activities, and promptly revegetating disturbed areas. The contractors, in accordance with state and federal regulations, would control emissions from construction equipment.

3.6 NOISE

Noise impacts have been assessed in accordance with guidelines published in 23 CFR Part 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. Details of the analysis methods and results can be found in the *Noise Technical Report (Appendix E)*.

A Noise Sensitive Area (NSA) represents a group of properties (receptors) that could be impacted by traffic noise. It may consist of residences, historic properties, schools, churches, and other facilities with common outdoor use areas. **Figure 14** depicts the NSAs and the locations where noise measurements were taken. See the *Noise Technical Report* for more details.





Noise levels are projected to increase in the project area, either with or without the project. The Refined On-alignment Alternative would impact 128 properties, and the No-build Alternative would impact 95. In accordance with DelDOT's Highway Transportation Noise Policy, Policy Implement No. D-03, Revised 7/5/11, mitigation measures were evaluated for receptors that would experience noise impacts as a result of this project. The *Noise Technical Report* provides details on the criteria for implementation of mitigation measures. Mitigation is typically in the form of a noise barrier wall or berm.

Barrier mitigation was determined to be feasible for NSA 2NB. However, the barrier in NSA 2NB would exceed the criterion for cost per benefited residence, and is therefore considered not reasonable. NSAs 1NB, 1SB, 2SB, 3, 4, 5, 7, 8, 9NB, 9SB, and 22 have impacted receptors but barrier mitigation is not feasible due to access limitations or noise contributions from local roads. The Refined On-Alignment alternative will provide grade-separated intersections to eliminate all existing signalized intersections and at-grade cross traffic along US 113. However, right-in/right-out access to US 113 will be maintained for a majority of the properties with existing access. Therefore, providing mitigation measures, such as a noise barrier, would not be cost-effective. The break required to maintain the access would reduce the effectiveness of the barrier. Berms are not feasible for the Refined On-alignment Alternative due to right of way constraints and access limitations.

Because there is no mitigation measure that is both feasible and reasonable for any receptor, no mitigation is proposed.

3.7 HAZARDOUS MATERIALS

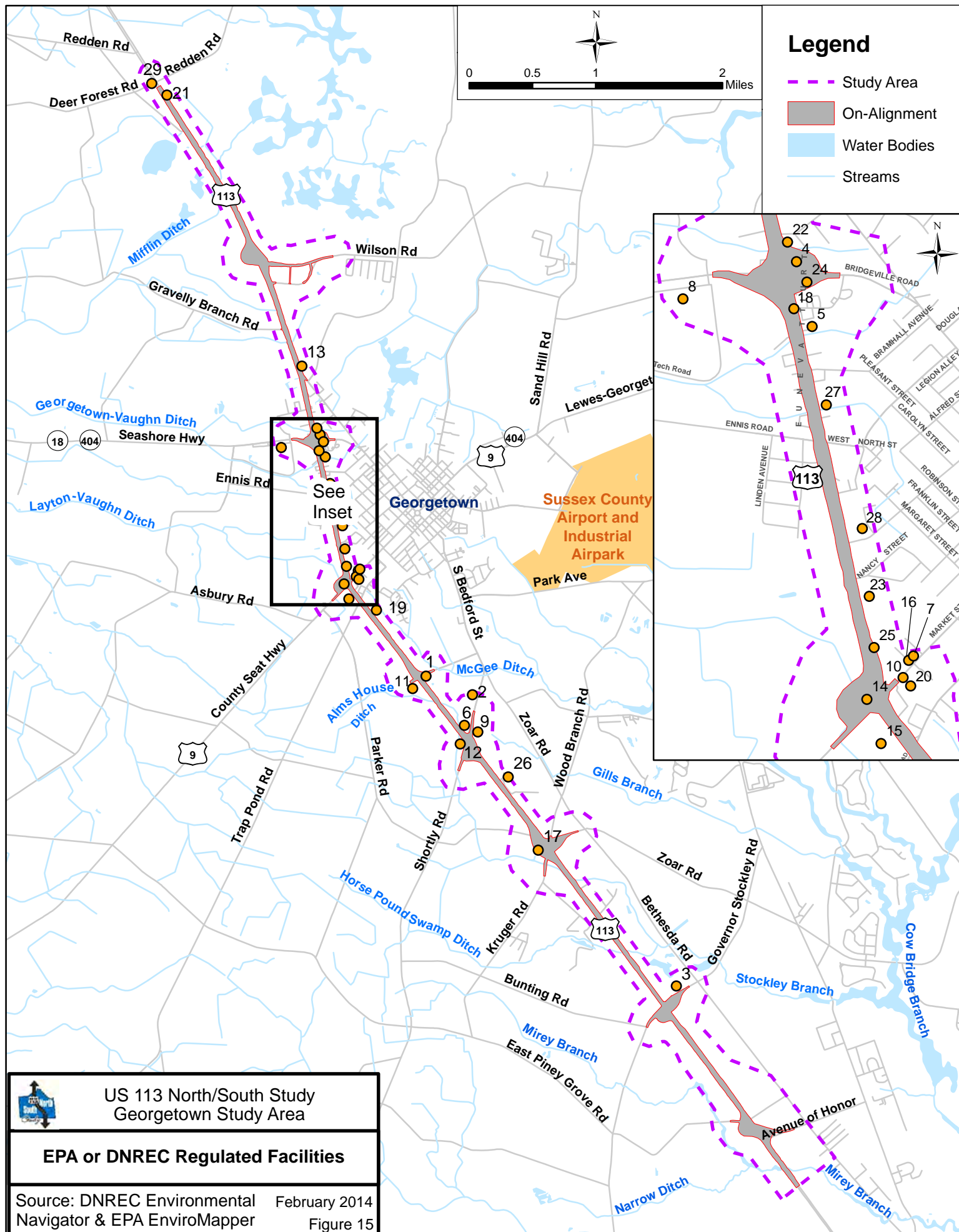
DNREC's Environmental Navigator and EPA's Envirofacts databases were searched for environmental regulatory information. **Table 10** and **Figure 15** indicate the facilities regulated by EPA or DNREC in the project area. The Environmental Navigator shows the following activities in the study area: Hazardous Waste Generators, Underground Storage Tanks (USTs), and Above-ground Storage Tanks (ASTs). Envirofacts includes the following listings in the study area:

- RCRAInfo – Resource Conservation and Recovery Act Information: Information on facilities who generate, transport, treat, store, and dispose of hazardous waste.
- CESQG – Conditionally Exempt Small Quantity Generator: An enterprise that produces fewer than 220 pounds of hazardous waste per month. These facilities are exempt from most regulations.



Table 10: EPA or DNREC Regulated Facilities

Figure 14 ID	Facility	Address	Regulated Activity	Environmental Interest and (Data Source)
1	Arrow Safety Device	301 S. Dupont Hwy.	▪ UST	▪ DNREC Environmental Navigator
2	Artcraft Lighting Center	542 S. Bedford St.	▪ UST	▪ DNREC Environmental Navigator
3	Banks, David A.	25268 Governor Stockley Rd.	▪ UST	▪ DNREC Environmental Navigator
4	Boulevard Auto Sales	US 113 & Rt. 18	▪ Hazardous Waste Generator	▪ DNREC Environmental Navigator
5	Brittingham Heating	Dupont Blvd. (Georgetown)	▪ UST	▪ DNREC Environmental Navigator
6	Cheer Trans Home Service	546 S. Bedford St.	▪ UST	▪ DNREC Environmental Navigator
7	Clarke Mechanical	506 W. Market St.	▪ UST	▪ DNREC Environmental Navigator
8	DE Tech and Community College	Rt. 18 (Georgetown)	▪ Hazardous Waste Generator ▪ UST	▪ DNREC Environmental Navigator
9	DeIDOT South District Headquarters	23697 Dupont Blvd.	▪ Hazardous Waste Generator ▪ UST	▪ DNREC Environmental Navigator
10	Discount Gas	Market St.	▪ UST	▪ DNREC Environmental Navigator
11	First State Motors	22694 S. Dupont Hwy.	▪ UST	▪ DNREC Environmental Navigator
12	former DE State Police Troop 4	526 N. Dupont Hwy.	▪ UST	▪ DNREC Environmental Navigator
13	Georgetown Citgo Station	702 N. Dupont Hwy.	▪ UST	▪ DNREC Environmental Navigator
14	Georgetown Exxon	3 N. Dupont Hwy.	▪ UST	▪ DNREC Environmental Navigator
15	Georgetown Plaza Cleaners	US 113 & SR 9	▪ Hazardous Waste Generator	▪ DNREC Environmental Navigator
16	Jeff White's Auto Inc.	514 W. Market St.	▪ Hazardous Waste Handler ▪ UST	▪ CESQG (RCRA notification) ▪ DNREC Environmental Navigator
17	Kruger Farms	24306 Dupont Blvd.	▪ UST	▪ DNREC Environmental Navigator
18	O K Seamer Service	512 N. Dupont Hwy.	▪ Hazardous Waste Handler	▪ unknown (RCRA notification)
19	Paul Short	N. Dupont Hwy. (Georgetown)	▪ UST	▪ DNREC Environmental Navigator
20	R. E. Blakely & Son	509 W. Market St.	▪ UST	▪ DNREC Environmental Navigator
21	Reddens Market	N. Dupont Hwy. (Georgetown)	▪ UST	▪ DNREC Environmental Navigator
22	Rogers Graphics	508 N. Dupont Hwy.	▪ Hazardous Waste Generator	▪ DNREC Environmental Navigator
23	Sharp Gas	104 N. Dupont Hwy.	▪ UST	▪ DNREC Environmental Navigator
24	Shore Distributors	US 113 & Bedford St.	▪ UST	▪ DNREC Environmental Navigator
25	Stickels Automotive	96 N. Dupont Hwy.	▪ UST	▪ DNREC Environmental Navigator
26	Sussex Correctional Center	500 S. Dupont Hwy.	▪ UST ▪ AST	▪ DNREC Environmental Navigator
27	Swain Building Supply	306 N. Dupont Hwy.	▪ UST	▪ DNREC Environmental Navigator
28	Tom Harold Buick GMC Trucks	200 N. Dupont Hwy.	▪ UST	▪ DNREC Environmental Navigator
29	Warrington Enterprises I	US 113 & Rt. 565	▪ UST	▪ DNREC Environmental Navigator





The parcels upon which seven of the hazardous materials facilities are located would be impacted by the Refined On-alignment Alternative. These facilities are listed in **Table 11**.

Table 11: Impacted Parcels with Hazardous Materials Facilities

Arrow Safety Device	O K Seamer Service
Boulevard Auto Sales	Shore Distributors
Georgetown Exxon	Stickels Automotive
Kruger Farms	

Although it is beyond the scope of this study to assess the potential impacts to these small generators of hazardous materials, there is no evidence of significant environmental contamination that would render this area unsuitable for roadway construction. A more detailed investigation (Phase I and/or Phase II Environment Site Assessment) may be necessary during the design phase of the project. Further testing of hazardous materials sites would be recommended if the proposed project would directly impact these areas. Any hazardous materials sites encountered during construction may require mitigation in accordance with federal and state standards and regulations.

3.8 AQUATIC RESOURCES

According to the US Forest Service's Wild and Scenic Rivers internet site, there are no National Wild and Scenic Rivers in the study area. There are also no existing or proposed State Scenic Rivers. The project would not adversely affect anadromous fish, trout streams, or shellfish beds.

Aquatic resources were identified through a review of available mapping, communications with local officials, and field investigations. Impacts to aquatic resources are shown in **Table 12**, and are discussed in detail in the following chapters.

Table 12: Impacts to Aquatic Resources

Aquatic Resource	No-build	Refined On-alignment
Waters of the U.S. - streams and tax ditches (linear feet)	0	4,080
100-Year Floodplain (acres)	0	0
Wetlands (acres)	0	14.5
Subaqueous Lands (linear feet)	0	2,473

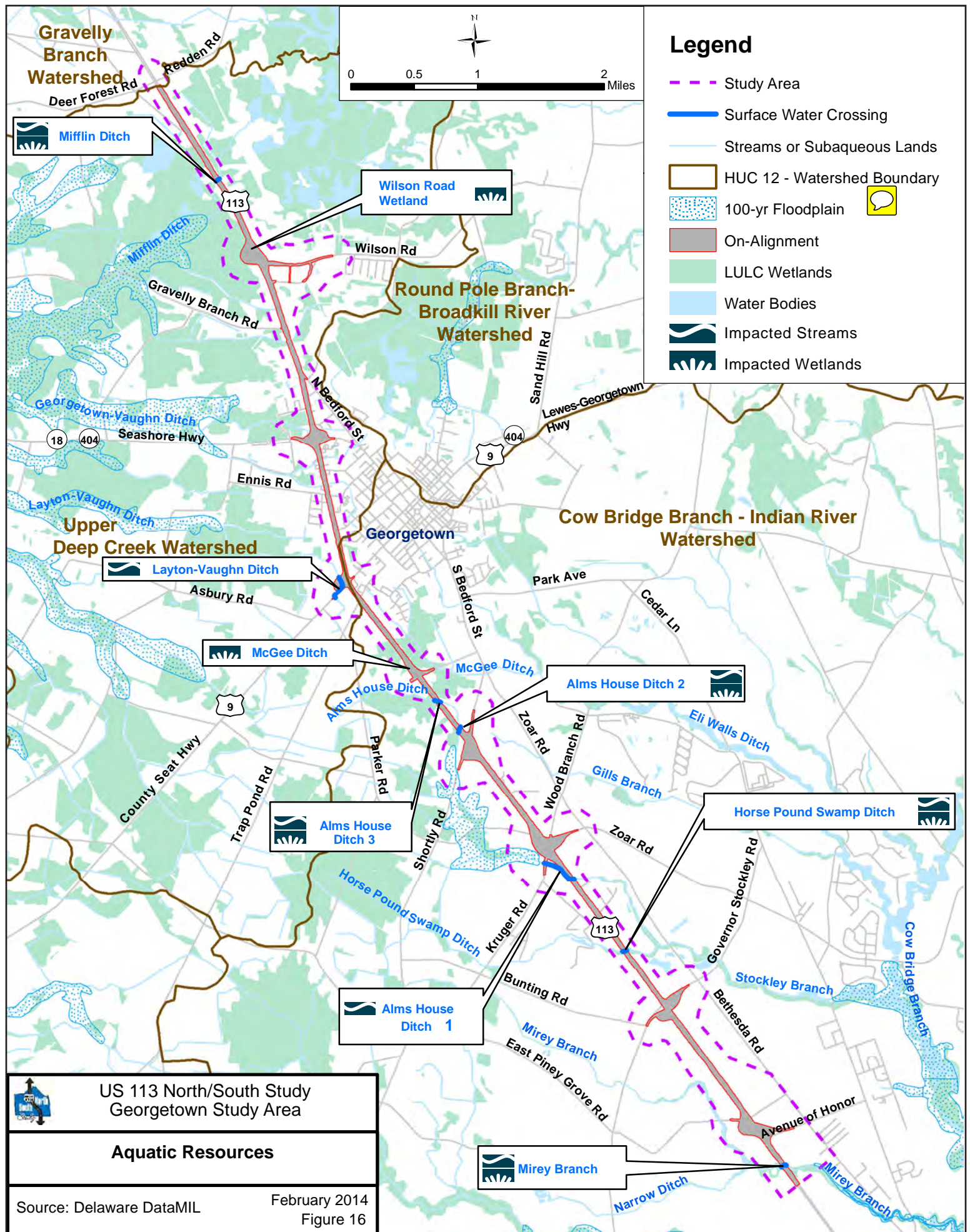
3.8.1 Surface Waters and Water Quality

Watersheds

The study area crosses four watersheds: Cow Bridge Branch – Indian River, Upper Deep Creek, Round Pole Branch –Broadkill River, and Gravelly Branch. They are shown on **Figure 16**.

Cow Bridge Branch – Indian River watershed

This watershed consists of 29,858 acres. Cowbridge Branch reaches the Atlantic Ocean via Millsboro Pond, the Indian River, and Indian River Bay. Major surface waters in this watershed include Cowbridge Branch, Stockley Branch, Eli Walls Tax Ditch, Deep Branch, Mirey Branch, Morris Mill Pond, and Millsboro Pond.





Land use in this watershed is primarily rural. Agriculture and forests are the dominant land uses. Excess nutrients are a concern.

Upper Deep Creek watershed

This watershed covers 40,618 acres. Deep Creek drains into the Nanticoke River, which flows to the Chesapeake Bay. Major surface waters in this watershed include Deep Creek, Mifflin Ditch, Big Mill Branch, McColleys Branch, Stoney Branch, and Rum Bridge Branch.

Land use in this watershed is primarily rural. According to Sussex County Land Use/Land Cover (LULC) mapping, wetlands, forests, and farmlands are common in the area. The primary water quality concern is excess bacteria.

Round Pole Branch –Broadkill River watershed

Only a very small portion of the study area, north and west of Georgetown, is located in this basin; therefore, detailed information about this watershed is not included in this EA.

Gravelly Branch watershed

Only a small the portion of the study area, along US 113 north of Redden Road, falls within this watershed; therefore, detailed information about this watershed is not included in this EA.

Surface Water Impacts

The impact of highway construction on surface water is associated with the number and nature of surface water crossings. The No-build Alternative would not create any direct impacts. As shown in **Table 13**, there would be twelve crossings of surface waters by the Refined On-alignment Alternative. The impacts shown reflect the new impervious surface in or near the crossings. The stream crossings are depicted on **Figure 15**.

Table 13: Surface Water Crossings

Water Course Name	Type of Water Course	Linear Feet of Waters Impacted*
Mirey Branch	natural stream	178
Horse Pound Swamp	natural stream	120
Alms House Ditch 1	natural stream	759
unnamed ditch	tax ditch	85
Alms House Ditch 2	tax ditch	241
Alms House Ditch 3	tax ditch	111
McGee Ditch	natural stream	61
Layton Vaughn Ditch	natural stream	454
unnamed ditch	tax ditch	40
unnamed ditch	tax ditch	40
unnamed ditch	tax ditch	254
Mifflin Ditch	tax ditch	80
Total	N/A	2,423

** Values based on Limits of Disturbance*

Bridging is the most effective means of reducing impacts, and all streams crossed for this project would be bridged. Other design measures, such as reducing the width of the roadway and median, could reduce surface water impacts and would be identified during permitting and final design. Where possible, streams would be maintained in their current condition and adequate



passage for aquatic life would be maintained. Unavoidable stream impacts would be compensated for based on stream quality and function, principally through relocation of channels and restoration of existing channels using natural stream design, or through preservation and/or restoration at selected sites. The mitigation package will be submitted with the permit application.

Water Quality

Roadway projects can result in nonpoint source (NPS) pollution. Typical NPS pollutants include heavy metals, asbestos, engine oils, and deicing salt. The *Delaware Sediment and Stormwater Regulations* are intended to reduce the amount of NPS pollution entering waterways through the use of Best Management Practices (BMPs) and other stormwater management techniques. Some of these techniques include installing sediment basins, ponds, or filter systems to clean runoff before it enters the water system. While the guidelines would be complied with during all phases of the project, and BMPs would be left in place following construction, NPS pollutants would still be transported into surface and ground water throughout the life of this project.

3.8.2 Floodplains

In accordance with Executive Order 11988 – *Floodplain Management* and 23 CFR Part 650 – *Location and Hydraulic Design for Encroachments on Floodplains*, the study area was evaluated for potential impacts to floodplains and floodways. Estimated 100-year floodplains were identified using Federal Emergency Management Agency Digital Flood Insurance Rate Maps. Regulatory floodways are areas that must be kept clear of any encroachments in order to accommodate a 100-year flood without any increases in the 100-year flood elevation. There are no regulatory floodways in the study area. As shown on **Figure 16**, the only 100-year floodplain in the study area is associated with Alms House Ditch.

Although the Refined On-alignment Alternative crosses a floodplain, bridges are proposed to reduce or eliminate impacts. Final bridge lengths will be determined following consultation with the resource agencies. Potential impacts to floodplains include displacement due to filling, alteration of drainage patterns, water quality degradation, reduction in flood storage capacity, and effects on floral and faunal communities. Executive Order 11988 prohibits federal support of incompatible floodplain development unless there is no practicable alternative. The Refined On-alignment Alternative would not support incompatible floodplain development.

Impacts would be mitigated by following the National Flood Insurance Program guidelines for the design and construction of culverts and bridges. Incorporation of stormwater management ponds during construction would satisfy the *Delaware Sediment and Stormwater Law* and the *Delaware Sediment and Stormwater Regulations* standards designed to reduce stormwater flows.

3.8.3 Wetlands

Section 404 of the Clean Water Act regulates the discharge of dredged or fill material into Waters of the United States (WOUS), including wetlands. Most activities in WOUS, including infrastructure development, are regulated under this program. Section 404 requires a permit before dredged or fill material may be discharged into WOUS, unless the activity is exempt.

Study area wetlands were initially identified off-site using 2002 LULC data, in association with DNREC's Official Delaware Tidal Wetland Delineation Maps and the Sussex County Soil



Survey. LULC wetlands were then field verified using criteria in the 1987 *Corps of Engineers Wetlands Delineation Manual*. Due to the extensive use of tax ditches in Sussex County, many areas mapped as wetlands according to LULC data were determined through field work to be drained, and they no longer meet the USACE definition for wetlands. Field work determined that additional LULC-mapped wetlands no longer meet the USACE definition of wetlands because of the recent Rapanos ruling, which indicated that roadside ditches running through uplands are not jurisdictional wetlands.

The wetlands in the study area are palustrine systems associated with, or in close proximity to, waterways. Most are forested, but scrub-shrub and emergent systems were found in areas of disturbance such as power lines and tax ditch rights of way. Using *A Guide to the Natural Communities of the Delaware Estuary*, wetlands in the project area are generally classified as Atlantic White Cedar - Red Maple Swamp, in a variety of successional stages. As the name implies, these wetland forests are generally dominated by Atlantic white cedar (*Chamaecyparis thyoides*) and red maple (*Acer rubrum*). Depending on the maturity of the forest stand, a variety of other species such as loblolly pine (*Pinus taeda*), sweetgum (*Liquidambar styraciflua*), American holly (*Ilex opaca*), white oak (*Quercus alba*), and sweetbay (*Magnolia virginiana*) may share dominance. Wetlands are shown on the alignment sheets in **Appendix A**.

Study Area Wetlands of the Cow Bridge Branch – Indian River Watershed

- Mirey Branch wetland: This forested system consists of an incised drainage ditch on the south side of US 113, and a braided channel north of US 113. The stream bottom is white sand. Dominant vegetation includes red maple in the canopy and skunk cabbage (*Symplocarpus foetidus*) in the herbaceous layer. There is no shrub layer. Occasional sweetbays occur in the understory. Sliver takes for the proposed widening of the highway would affect this wooded system.
- Horse Pound Swamp Ditch wetland: This wetland system consists of an incised, cut down stream valley immediately west of US 113, and a mature forested floodplain wetland east of the roadway. This system is representative of a mature red maple swamp with sweetbay and American holly in the understory. Skunk cabbages are located throughout the mucky organic soils adjacent to the stream. Sliver takes for the proposed widening of the highway would affect this wooded system.
- Alms House Ditch Wetlands: These forested systems are dominated by mature maples, white oaks, and loblolly pines. Sweetbay is located throughout the understory. The Alms House Ditch System and the roadside drainage of US 113 have affected the drawdown of the groundwater of these wetlands. Sliver takes for the proposed widening of the highway would affect this wooded system.
- McGee Ditch wetlands: These palustrine forested wetlands are also dominated by loblolly pine and red maple. The hydrology of these wetlands has been affected by the McGee Ditch located east of US 113 and by the drainage system for US 113. The proposed interchange with Arrow Safety Road would impact this wetland.

Study Area Wetlands of the Upper Deep Creek Watershed

- Wilson Road wetland: This large forested system is dominated by Atlantic white cedar and red maple. Loblolly pines, sweetgums, American hollies, and white oaks are also



common. Sweetbays occupy the understory. The proposed interchange at Wilson Road would impact this wetland.

- Mifflin Ditch wetland: This system is located between two maintained tax ditches. The forest canopy is dominated by red maple and loblolly pine, with sweetbay in the understory. Sliver takes for the proposed widening of the highway would affect this wooded system.

Wetland Impacts

In accordance with Executive Order 11990, *Protection of Wetlands*, wetlands were avoided where practical. Impacts are summarized in **Table 14**. For this document, it was assumed that all wetlands within the limits of disturbance would be displaced, even though it is anticipated that impacts would be decreased through design refinements.

Table 14: Wetland Impacts

Wetland Name	Impacts (acres)
Mirey Branch	1.0
Horse Pound Swamp Ditch	0.1
Alms House Ditch 1	1.3
Alms House Ditch 2	0.4
Alms House Ditch 3	0.8
McGee Ditch	0.5
Wilson Road	9.4
Mifflin Ditch	1.1
Total	14.6

Impacts are based on the project's preliminary design for interchanges, and are reduced through the use of bridges. Although bridges have a smaller footprint than roadbeds with fill slopes, wetlands under bridges experience impacts due to the placement of footers, piers, or pilings, or from shading or temporary construction measures. In addition, the area under bridges is precluded from reverting to a mature forested state, and installing a bridge in a forested wetland is considered a conversion impact. However, areas under structures would be allowed to revegetate, thereby maintaining hydrologic and habitat connectivity. The acreage of reduced impacts depends on the bridge design and construction methods that are selected.

Direct wetland impacts may also be diminished through design measures that reduce the width of the roadway and median. These measures, such as using 2:1 slopes or retaining walls, would be identified during the permitting and final design process.

Indirect impacts, such as increased levels of sediment-, nutrient-, or pollutant-laden stormwater runoff and/or the alteration of floodwaters and wetland hydrology, may occur to wetlands adjacent to the project. Indirect impacts may also occur due to construction activities, traffic operations, and maintenance. Restricting the location of staging areas and construction causeways in wetlands, implementation of appropriate erosion and sediment control measures, and the proper sizing, design, and alignment of drainage structures would reduce indirect impacts. Additionally, storm water basins and other BMPs would be incorporated into the design and maintenance plans to reduce impacts to wetland hydrology and water quality.



The USACE has verified that the wetland field work conducted for this study was adequate for preparation of this document. No delineations or surveying have been conducted to date; however, they would be completed prior to applying for permits.

Wetland Compensation

The mitigation strategy for this project is being developed, and would ensure full replacement of impacted wetlands. A comprehensive plan would be developed to meet the recommended replacement ratios for forested wetlands that are in effect at the time of construction. The current ratios for these systems are 2:1. Additionally, the plan would strive to replace wetlands within the same watershed as the impacts. The plan would be included with the permit applications.

3.8.4 Subaqueous Lands

Subaqueous lands are regulated under 7 Delaware Code 7212. They include lands lying below the line of mean low tide in the beds of all tidal waters within the boundaries of the State, together with the beds (channelward of ordinary high water in non-tidal waters) of navigable rivers, streams, lakes, bays, inlets, ponds, or other waterways within the boundaries of the State. Impacts to subaqueous lands would be minimized where possible; unavoidable impacts are shown in **Table 13** and on **Figure 16**.

3.9 FORESTS AND STATE RESOURCE AREAS

Forests

Forests in the study area are generally characterized as early- to mid-successional. Oak (*Quercus* spp.) and loblolly pine are dominant on better drained soils. Other species include red maple, sweetbay, sweetgum, blackgum (*Nyssa sylvatica*), American holly, flowering dogwood (*Cornus florida*), American beech (*Fagus grandifolia*), and birch (*Betula* spp.). **Figure 17** demonstrates that there are no large tracts of contiguous forest in the study area.

According to **Table 4**, there would be 9.8 acres of forest impacted by this project. Potential impacts consist of loss of forests, fragmentation, and allowing invasive species to become established. Mitigation for impacts would be in accordance with **Appendix A** of DelDOT's *Road Design Manual*, and would consist of replacing impacted forest acreage at a 1:1 ratio.

State Resource Areas, Natural Areas, and Nature Preserves

State Resource Areas (SRAs) are lands that DNREC has determined are valuable habitat for wildlife. They have little legal protection.

The Natural Areas Preservation System established a statewide inventory of natural areas and nature preserves. A natural area is an area which retains or has reestablished its natural character, has unusual flora or fauna, or has significant biotic, geological, scenic, or archeological features. As of July 2009, there were 68 natural areas identified in the state.

Nature Preserves are natural areas that have been formally “dedicated” or transferred to DNREC for and on behalf of the State. As of July 2009, there were 27 nature preserves in the state.

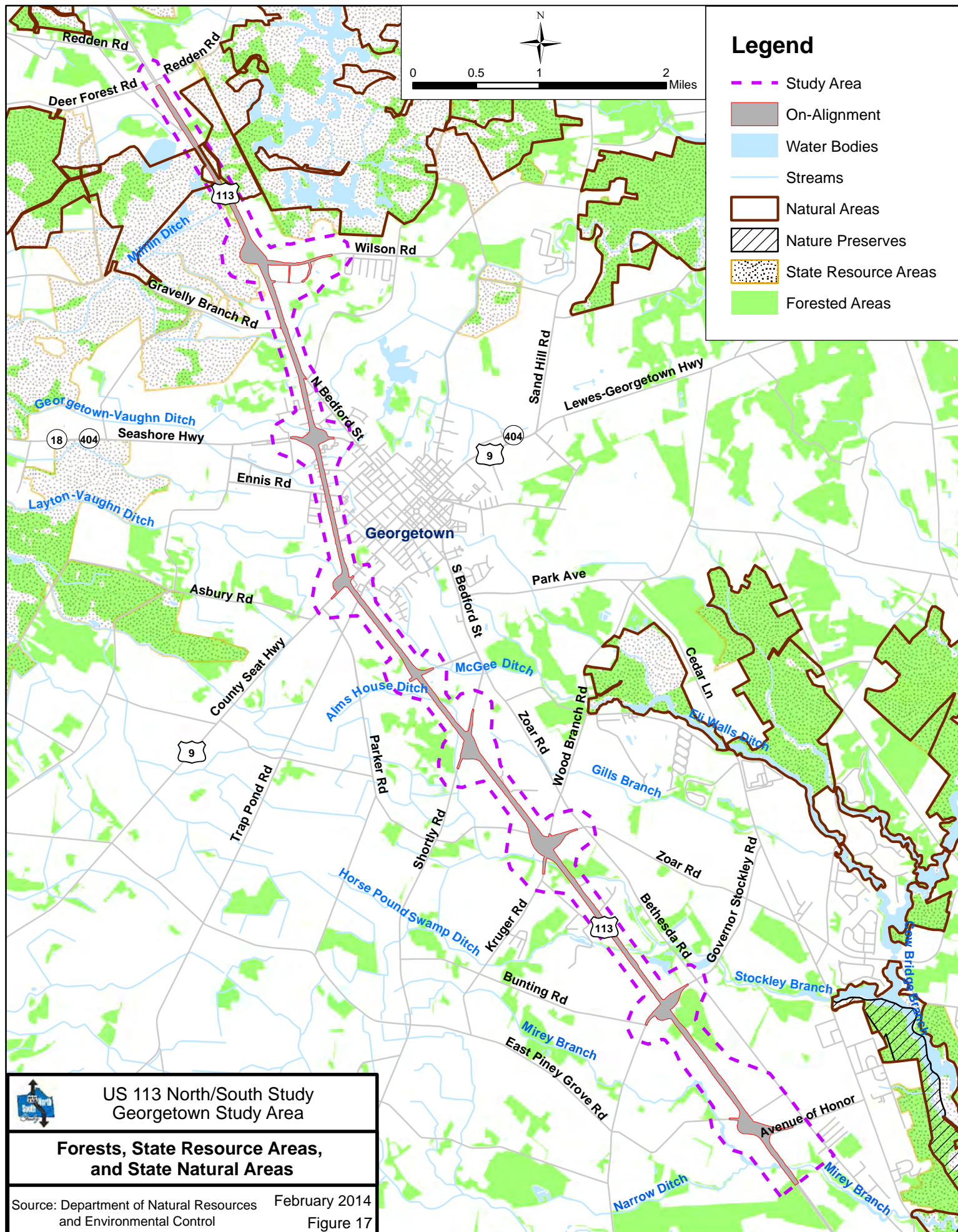




Figure 17 shows that there is a SRA and a Natural Area associated with and adjacent to the Ellendale/Redden State Forest north of Georgetown. Since the roadway already exists through this area and there would only be minor widening, there would be minimal impacts to this SRA and Natural Area. There are no Nature Preserves in the study area.

3.10 RARE, THREATENED, AND ENDANGERED (RTE) SPECIES

The Endangered Species Act (ESA) protects both species and their critical habitat (all areas necessary for their recovery). It covers plants, invertebrates, and vertebrates. The ESA prohibits federal agencies from authorizing, funding, or carrying out actions which may jeopardize endangered species or their critical habitats.

Correspondence from the US Fish and Wildlife Service, dated November 28, 2006, stated that two federally listed species, Bald Eagle and swamp pink, may be located in the project area. Since then, the Bald Eagle has been removed from the Endangered Species list. However, it is still protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. It is also listed as State Endangered in Delaware. Updated language for the state Endangered Species Act is pending. The closest recorded Bald Eagle nest is in Millsboro Pond, outside the study area.

The swamp pink is federally-threatened. The plant is found in saturated, usually organic soils or black mucks which are mostly covered in sphagnum. Although this habitat is prevalent in the stream valleys in the study area, swamp pink has not been confirmed in any of these streams.

Two biologists conducted field searches for swamp pink at every stream/wetland crossing in the project area. The searches were conducted in early April, immediately after viewing a known population, which served as a reference site. No new populations were found, but this does not prove that the plants do not exist in the area. Prior to applying for permits, a more detailed survey would be conducted to verify the presence or absence of the species. Should a new colony be found, consultation would be initiated with the USFWS.

To protect swamp pink, the impacts of hydrologic changes, siltation, and runoff would be minimized by using bridges and stormwater management facilities to reduce sedimentation.

In 2007, a DNREC zoologist reported a sighting of the federally-endangered Delmarva fox squirrel (*Sciurus niger cinereus*) at the Doe Bridge Nature Preserve (Stockley Center) southeast of the study area. Two seasons of intensive photo monitoring provided no additional evidence of Delmarva fox squirrels in the Nature Preserve. Therefore, the USFWS has determined that the squirrel sighted in 2007 was a transient individual and no Section 7 consultation is necessary at this time. However, should Delmarva fox squirrels be sighted in the future, consultation must be initiated.

DNREC's Natural Heritage Program maintains databases of rare plants, animals, and natural communities in Delaware. **Table 15** is derived from *Rare Vascular Plants of Delaware* and *Delaware Animals of Conservation Concern*. The list contains two extremely rare species and four very rare species. Since the study area has not been exhaustively searched for RTE species, it is possible that species other than those listed in **Table 15** may be present.



Table 15: Species of Conservation Concern Likely to Occur in the Study Area

Common Name	Scientific Name	Taxon	State Rank
Red-shouldered Hawk	<i>Buteo lineatus</i>	bird	Very rare (breeding) Uncommon (non-breeding)
Black Vulture	<i>Coragyps atratus</i>	bird	Very rare (breeding)
Yellow-throated Warbler	<i>Dendroica dominica</i>	bird	Very rare (breeding)
American brook lamprey	<i>Lampetra appendix</i>	fish	Very rare
Northern Parula	<i>Parula americana</i>	bird	Extremely rare (breeding)
mud salamander	<i>Pseudotriton montanus</i>	amphibian	Extremely rare

Source: DNREC

Techniques to reduce impacts to threatened or endangered species include design measures such as bridging, countersinking of culverts, and reducing the roadway footprint and median width. Temporary impacts can be reduced through minimizing staging areas and construction access roads in valuable habitats. Mitigation measures would be further developed following design refinements and additional coordination with DNREC's Division of Fish and Wildlife. They may include time of year restrictions for construction, contractor training in recognizing and avoiding RTE species and their habitats, and on-site restoration of habitat.

3.11 Permits

3.11.1 Permit Application

A "Wetlands and Subaqueous Lands Section Basic Application Form" must be submitted to the DNREC Division of Water Resources to receive a permit for work in streams and wetlands in Delaware. In addition, an "Application for a Department of the Army Permit" must be submitted to the Philadelphia District Army Corps of Engineers. The Corps would issue a public notice of this project, solicit public comments, and conduct a public interest review that includes those comments.

3.11.2 Federal Consistency

The Coastal Zone Management Act allows states to manage development in their coastal zones. In Delaware, oversight is provided by the Delaware Coastal Management Program (DCMP). Federal activities which are reasonably likely to affect any land use, water use, or natural resources in Delaware's designated Coastal Management Area must be consistent with the policies of the DCMP. Because no portion of the State is more than eight miles from tidal waters, Delaware's Coastal Management Area includes the entire State.

Applicants for federal consistency submit a statement of "consistency", along with a complete project description and analysis of impacts, to DCMP. Projects are reviewed, often with input from other state and federal agencies. The applicant then receives a letter stating either that the project is in keeping with DCMP policies and may proceed, or that the project may not proceed until it is modified to adhere to the Coastal Management Policies.



All agencies with enforceable regulatory programs of the DCMP have had an opportunity to review and comment on this document. A statement of consistency would be submitted at the same time as the DNREC and USACE permit applications are submitted.

3.12 EMERGENCY EVACUATION ROUTES

Emergency evacuation is a concern in Sussex County due to the threat of coastal storms and flooding. Approximately 48 percent of Sussex County's housing units are potentially subject to some tidal inundation in a Category 4 hurricane. Safe and efficient evacuation routes have been identified in the Transportation Management Plan for Evacuation prepared as part of the Delaware Emergency Operations Plan by the Evacuation Committee.

US 113 is a designated north-south evacuation route from Kent County in the north to the Maryland state line in the south. US 9, which crosses US 113 in the study area, is designated as an east-west emergency evacuation route. Improvements due to implementation of the Refined On-alignment Alternative would help provide adequate traffic capacity along evacuation routes that would not occur under the No-Build Alternative.

3.13 CONSTRUCTABILITY

The Refined On-Alignment Alternative seeks to address safety and capacity needs for anticipated traffic growth, but will impact the traveling public during construction. Seven of the eight proposed grade separated intersections were designed to minimize impacts to traffic by adjusting the horizontal and vertical alignment of the cross road instead of US 113. At the grade separated intersection at US 9, direct impacts to existing historic resources required raising the profile of US 113 over US 9. Due to the potential conflict between construction vehicles and existing traffic, long-term lane closures along US 113 will be necessary. The proposed widening of the mainline will be the focus of the first phase of construction ensuring that the new lanes can be used to maintain two lanes of northbound/southbound US 113 traffic during construction of the bridges and other work in the median. Because of the need to maintain traffic along US 113, the duration of construction would be longer than an off-alignment alternative. It is likely that detour routes would be used for cross roads where grade separation is proposed. It is also important to note that the construction of the grade separated intersections would be based on future need. The existing signalized intersections would remain until traffic demand indicates upgrades are needed.

3.14 INDIRECT AND CUMULATIVE EFFECTS (ICE)

Indirect (or secondary) effects are "caused by the action and are later in time or farther removed in distance, but still reasonably foreseeable." Indirect effects may also occur if the action changes the extent, pace, and/or location of development, and if this change affects environmental resources.

Cumulative effects are the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions." They



occur when there are additive impacts to a resource from the proposed action in conjunction with other development projects.

3.14.1 Analysis of Indirect and Cumulative Effects

The purpose of the project is to preserve mobility for local residents and businesses while providing highway improvements that would reduce congestion and accommodate anticipated growth in local, seasonal, and through traffic. If the US 113 improvements are not constructed, development and growth in traffic would continue to occur. Developers may be required to provide measures to mitigate traffic congestion specific to their development; however, this would not adequately address the future needs of the US 113 corridor. There may also be development that becomes more economically viable as a result of the US 113 improvements, but this was not a primary factor in the selection of the Preferred Alternative.

There are no transportation, residential or commercial development projects dependent upon the completion of the US 113 Refined On-alignment. Growth is expected to occur, and the size of the developable area would be similar, regardless of which alternative is selected. Therefore, this project would not induce secondary development from dependent projects, land use changes, or zoning changes. Improvements to US 113 would not provide access to areas otherwise inaccessible to development, and therefore would not influence the extent of development. The Refined On-alignment Alternative would facilitate land use changes at some locations, particularly at proposed interchanges. These changes in land use are likely to influence the location of future, reasonably foreseeable development. Because ease of travel and decreased congestion may encourage people and businesses to move to growth areas, the Refined On-alignment Alternative could influence the rate of completion of approved and proposed developments at interchanges. Thus the US 113 project could stimulate secondary effects caused by changes to the rate of development. The proposed interchange locations are listed below:

- Piney Grove Road/Avenue of Honor
- Governor Stockley Road
- Kruger Road/Alms House Road/Speedway Road
- Shortly Road/ South Bedford Street
- Arrow Safety Road
- US 9
- SR 18/SR 404
- Wilson Road

Socioeconomic Resources

Although the No-build Alternative would not impact socioeconomic resources, roadways in the project area would continue to experience increased congestion as development and the population increase. New development may not reach its full build-out potential, due to a lack of access to major roadways and congestion on local roads. Congestion would eventually hinder access to local businesses, thereby discouraging economic development, and it would slow the transport of goods and services. The No-build Alternative may also result in the relocation of some businesses to areas with better regional access as travel conditions worsen.



Secondary and cumulative effects from the Refined On-alignment Alternative, such as changes in accessibility and changes in the community structure (cohesion, interactivity, changes in locations of some businesses), would occur near the areas of direct impacts. Most impacts would be at interchanges. Cumulative effects could increase the number of residential displacements when this project is added to other projects. Additional cumulative effects could include stresses on community infrastructure (water, sewer, etc.) and facilities (schools, emergency response capability, etc.).

Agriculture

One potential secondary effect of the Refined On-alignment Alternative is more rapid conversion of farmlands to urban areas, due to improved regional access. The Refined On-alignment Alternative may also create access limitations to farmable lands, potentially producing secondary impacts, such as cessation of farming on parcels from which access is removed. These changes could decrease the cumulative agricultural productivity in the region.

Cultural Resources

The Refined On-alignment Alternative may cause secondary effects by changing the location of development, potentially creating structural stresses to historic buildings from additional traffic vibrations. Cultural resources in areas not currently designated for growth would not incur secondary effects under either alternative.

Cumulative effects, which are regulated by laws to protect cultural resources, are equally likely under either alternative. Section 4(f) of the Department of Transportation Act prohibits the use of significant cultural resources for federal transportation projects unless there is a thorough analysis to avoid and minimize harm. Section 106 of the National Historic Preservation Act provides for the protection of historic properties that are listed on or eligible for listing on the National Register, and requires appropriate minimization and mitigation of any adverse effects.

Streams, Wetlands, and Floodplains

Future development and transportation projects would occur regardless of whether this project is constructed; therefore secondary impacts to wetlands and streams are not anticipated. Future projects would be subject to federal and state legislation, with reviews from the USACE and DNREC. Permits requiring avoidance, minimization, and/or mitigation would help offset most losses caused by cumulative effects.

No secondary impacts to floodplains are anticipated as a result of implementation of the US 113 project. Stormwater management ponds and linear runoff retention areas would minimize the effects of storm events on the holding capacity of the floodplain. Regulations (Executive Order 11988, US Department of Transportation Order 5650.2, and the National Flood Insurance Act) are in place to prevent cumulative effects to floodplains. Development would not occur in floodplains as they are unsuitable and unsafe for building.

Water Quality and Aquatic Habitats

Secondary impacts anticipated with the Refined On-alignment Alternative include increased conversion of open space, farms, and forests to impervious areas or manicured landscapes. This could result in increased surface runoff and peak storm flow, and the potential for introduction of pollutants and sediment into waterways. Stormwater management ponds and linear runoff



retention areas would minimize the effects of storm events, largely preventing degradation of water quality.

Cumulative effects include incremental impacts caused by additional development and an increase in the amount of impervious surface.

Rare, Threatened, and Endangered Species

Secondary effects of the Refined On-alignment Alternative could include alteration of habitat. The location and rate of development, particularly around interchanges, may increase, which also affects habitat.

Cumulative effects may include loss of habitat or continued disturbance as a result of increased development. The ESA requires consideration and avoidance of known occurrences of listed species, thus lessening cumulative effects.

Forests, State Resource Areas, and Natural Areas

Secondary effects could occur as a result of the Refined On-alignment Alternative. Compared to the No-build Alternative, the rate of development could increase due to improved capacity on US 113. This could result in a faster conversion of forests, state resource areas, and natural areas to land designated for residential and commercial uses, especially near interchanges. The maturity of forested areas would change as established forest lands are cleared and new forests are planted.

Cumulative effects to forests and forest habitat, including fragmentation, would occur when the Refined On-alignment is combined with other projects. They would most likely occur in forests, state resource areas, and natural areas that are designated for development. Fragmented, isolated parcels of woodlands and natural areas are less effective as wildlife habitat and for the protection of air, water, and soil.

Emergency Evacuation Routes

US 113 is a designated north-south evacuation route from Kent County in the north to the Maryland state line in the south. Additionally, SR 20, SR 24, SR 54, and US 9, all of which cross US 113, are designated as east-west emergency evacuation routes. Maintaining adequate traffic capacity along evacuation routes is critical to the safety of Sussex County residents. Roadway improvements from this portion of the US 113 project, coupled with the proposed improvements along adjacent segments of US 113 in Delaware, would help ensure that regional evacuation routes are accessible and efficient.

3.14.2 ICE Summary

Secondary effects are anticipated to be minor and are most likely to occur near areas of direct impacts. If the US 113 project directly or secondarily affects a resource, then cumulative effects could occur if another development or project affects the same resource. To minimize the potential for secondary and cumulative effects, components of the project would only be constructed as they are needed. For instance, within the study area, the intersections of US 113 and US 9 and SR 18/404 are both currently failing. The other intersections in the study area are working acceptably. Therefore, improvements to the failing intersections and US 113 between them would be programmed first, with future improvements programmed on an as needed basis.



4 AGENCY AND PUBLIC COORDINATION

Public involvement began early in the Georgetown portion of the US 113 North/South Study, with stakeholder interviews, the formation of a Working Group, and a program of public outreach through mailings, announcements, a project website, and public workshops.

4.1 Stakeholder Listening Tour

Beginning in August 2003, interviews were conducted with elected officials, agency representatives, business and other property owners, farmers, interest groups, and community organizations throughout the study area. The objectives were to inform stakeholders about the project; build credibility for the project development process and Project Team; and discover issues, expectations, and suggestions at the earliest possible stage. The interviews also identified additional stakeholders and provided suggestions for how to inform and involve people in the study area.

The public has extensive, and sometimes conflicting, ideas about improvements needed to address transportation issues in the US 113 corridor, but the following are some of the key thoughts expressed during the interviews:

- Rapid development and escalating land costs in the US 113 corridor make options for highway improvements fewer and more expensive with every passing month.
- There are serious congestion and safety problems on east-west routes.
- The impact of highway improvements on existing businesses must be addressed.
- If we don't act now, the US 113 corridor could end up with problems like those on SR 1 from Five Points to Rehoboth.
- Development is planned all along US 113, from north of Milford through Selbyville. Therefore, it is important to look at the entire length of US 113 in Delaware.
- Development is way ahead of our highways, and greater coordination is needed between developers and transportation officials.
- To protect natural resources and farmland, improvements should be kept as close to current US 113 as possible.
- Different solutions need to be applied in different locations.
- US 113 should serve the needs of the Delmarva Peninsula, and not become a preferred alternative for I-95 east coast travel.
- Any US 113 transportation plan needs to reflect a balance in treating local, through, and resort traffic.
- Solving US 113 land use and transportation issues would require concerted efforts by Georgetown, Sussex County, and DelDOT.
- Once a plan for improvement of US 113 is in place, we need to stick to it and follow through in a timely manner.
- Georgetown and Sussex County are interested in working closely with DelDOT to address these issues.



4.2 Working Group

A 29-person Georgetown Area Working Group was created to provide input to DelDOT regarding establishment of a limited access highway, and to analyze current and future needs along the US 113 corridor. All Working Group meetings were open to the public, and most were covered by the local media. Meetings were held in the evening to encourage citizen attendance.

The working group met 17 times between February 2004 and May 2007. The group consisted of six area residents, along with representatives of the following agencies, organizations, businesses, or industries:

- Bayhealth Medical Center
- Construction/real estate/land companies (Melvin L. Joseph Construction Co.; Sussex County Association of Realtors; Century 21; Indian River Land Company)
- Delaware Center for the Inland Bays
- Educational institutions (Delaware Tech; Indian River School District)
- First State Community Action Agency
- Georgetown (Planning and Zoning)
- Greater Georgetown Chamber of Commerce
- La Esperanza, Inc.
- Poultry industry (Eastern Shore Poultry Co.; Perdue Farms)
- Preservation groups (Historic Georgetown Association; Georgetown Historical Society)
- Southern Delaware Tourism
- State of Delaware (State Police Troop 4; Department of Agriculture; Office of State Planning Coordination; DelDOT)
- Sussex County (Planning and Zoning; Emergency Operations)
- Sussex County Farm Bureau

4.3 Public Events

Six public workshops and one open house were held between October 2003 and March 2007. Over 1,300 people attended these events. The events were widely publicized in local newspapers, and over 1,000 people were individually notified about them. Notices of upcoming workshops were also posted on the Project's web site.

A variety of techniques were used to present information, including the video, "The Time to Act is Now;" large, reader-friendly displays; Power Point presentations; and large maps with the alternatives overlain on an aerial photograph. Project Team members were available at all events to talk to citizens, answer their questions, and provide property-specific information. Comment forms were available at each event. All comment forms and other written communications were summarized and entered into the project record. The following is a summary of each workshop.

October 22, 2003: Public Workshop, Delaware Technical and Community College

The first public workshop was attended by 61 people. The purposes were to inform the public about the US 113 North/South Study and to obtain information from residents regarding



transportation issues and needs. The project video was shown, and displays were used to present the following information:

- Environmental agency coordination
- Project purpose and need
- Growth and land use
- Natural, agricultural, and cultural resources
- Safety and traffic conditions
- Sussex County transportation projects

Participants were asked to comment about transportation needs, suggest solutions, and to provide information about the presence of environmental or historic resources in the study area.

June 14, 2004: Public Workshop, Cheer Community Center

The second public workshop attracted 69 people. Display boards were used to convey information and encourage comments regarding:

- Project background
- Environmental agency coordination schedule
- Working group process
- Vision, goals, and objectives
- Population and land use
- Travel patterns
- Transit
- Improvement concepts (On-alignment option and Off-alignment bypass options)

This information was also summarized in a Power Point presentation, which was shown three times. Attendees provided verbal comments to the Project Team and used comment forms to provide written input.

November 9, 2004: Public Workshop, Cheer Community Center

The purpose of the third public workshop, attended by 147 people, was to present the preliminary alternatives for review and comment. Public comments on the conceptual alternatives presented at the June 2004 public workshop were considered when preparing the preliminary alternatives. Display boards provided information on the following topics:

- Study process/misconceptions/next steps/schedule
- Community involvement
- Travel patterns/traffic assessments
- Limited access highway/east-west traffic
- Property acquisition process
- Sussex County transportation projects

Large maps were available for each preliminary alternative (East and West Bypass Options, and On-alignment). These maps received considerable attention as attendees assessed potential impacts to their properties and communities. Matrices were available to quantify the engineering, agricultural, cultural/historic, natural resource, property, and access impacts of the



alternatives. Attendees were given a handout with reduced versions of the displays and related information so they could review the materials in detail at their leisure.

June 13, 2005: Public Workshop, Cheer Community Center

The purpose of the fourth public workshop was to obtain input to help DelDOT determine which preliminary alternatives should be retained for detailed study and which alternatives should be eliminated from further consideration. The workshop was attended by 190 people.

Large display boards, maps of the alternatives, impact matrices, and Working Group recommendations were available for review. These materials were also available as handouts.

October 17, 2005: Open House, Cheer Community Center

This day-long informal event was attended by 252 people. It allowed attendees to review maps of the alternatives without the time and crowd constraints experienced at public workshops. The open house received the same publicity and notification as did the public workshops. The comments and information provided by attendees were used in refining the retained alternatives.

June 5, 2006: Public Workshop, Cheer Community Center

The purpose of the fifth workshop was to obtain input from the public to help DelDOT further refine the Alternatives Retained for Detailed Study and move forward with a Draft EA. The focus of the workshop was refinements to the On-alignment and Bypass alternatives and key issues and impacts associated with them. A Power Point presentation was offered three times to summarize the status of the project, review the retained alternatives, and outline the next steps in the process. The workshop was attended by 108 people. Participants used comment forms and expressed their concerns verbally about the ARDS. They also suggested refinements.

March 15, 2007: Public Workshop, Cheer Community Center

The primary focus of this workshop was to obtain input from the public regarding the advisability of including an additional alternative, called the "East-to-East" option. It would connect the eastern bypass of Georgetown to bypasses east of the Millsboro area. The Millsboro bypasses were developed as part of a separate study. Large display boards and maps of the two East-to-East options were used to present information about the study and the results of the evaluations of the ARDS. The following information was available at the workshop:

- Community involvement/process overview/agency coordination
- Study area/purpose and need
- Property acquisition process
- Georgetown-Millsboro East-to-East alternatives
- Next steps

A Power Point presentation, explaining the alternatives, their advantages and disadvantages, and the views of the state and federal regulatory agencies, was shown three times. The maps of each alternative received considerable attention.

The comment form requested attendees to provide input regarding the desirability of adding the East-to-East alternatives to the ARDS. The meeting attracted 527 people, and 508 comment forms were received. They showed an overwhelming lack of support for either East-to-East



alternative. Based on this input and technical factors, DelDOT decided to eliminate these alternatives from further consideration.

4.4 Local Community Meetings

The Project Team conducted approximately 50 meetings with owners of historic properties, businesses, churches, and farms located along the Refined On-alignment. DelDOT representatives met with other groups, including the Georgetown Chamber of Commerce, Ruritan and Rotary Clubs, the Georgetown Historical Society, and the Georgetown Historic Association. The purpose of these meetings was to keep the community informed and obtain their views as the study progressed.

“The Time to Act is Now,” was shown at many of the local meetings. The video emphasized the rapid growth and increased traffic that Delaware, particularly Sussex County, has experienced and is expected to continue experiencing in the next 25 years. The video emphasized that “unless we act today,” US 113 would end up resembling SR 1 from Five Points to Rehoboth. Two options were presented: do nothing and face the consequences in 20 years, or upgrade US 113 to a limited access highway. How this goal can be achieved was outlined in the video, as were opportunities for public involvement.

4.5 Project Mailing List, Announcements, and Media Outreach

A mailing list evolved during the project, and it was used to notify over 1,000 residents and businesses about the last public workshop. The mailing list included everyone who attended a Working Group meeting, a public workshop, or the open house. People who contacted DelDOT or the Project Team and those who live near the Refined On-alignment were also included.

Before each public workshop, an announcement was sent to people on the mailing list notifying them about the purpose, subject matter, time, and location of the workshop. A legal Public Notice was placed in newspapers serving the Georgetown area. Additionally, an FYI notice was placed in the papers as an attractive “reader friendly” advertisement located outside the classified sections. The FYI and Public Notice appeared in the *News Journal – Kent and Sussex Edition*, *Sussex Countian*, and *Sussex Post*.

Upcoming workshops were mentioned on the project web site and “Window Posters” were placed in popular pedestrian travel locations in the study area. The posters were also produced in Spanish to meet the needs of the Hispanic community, and a Spanish interpreter was present at the public workshops.

Throughout the project development process, DelDOT has actively involved the media, so that they could inform the public and urge residents to get involved. Between October 2003 and June 2007, thirteen press releases were issued, sometimes accompanied by a press briefing. The releases focused on informing the public about the project at key milestones.



4.6 Project Website

An interactive project web site (<http://www.delDOT.gov/information/projects/us113>) has been operational since August 2003. It includes information on all of the US 113 projects. Information available on the web site includes:

- Home Page –Most recent project highlights, status, and contact information
- Project Information – Project study area, need, goals, and objectives
- Working Group Information – Membership, purpose and role, agenda, minutes, presentation materials for each meeting
- Environmental Process – NEPA process, resource agencies, resource information
- Retained Alternatives – Interactive maps using Flash player
- Public Involvement Process – Press releases, project video, working group meetings, and public workshop information
- Public Workshops – Displays, handouts, comparison of alternatives, alternatives, public comments

Maps and key information were updated frequently. Comment forms could be obtained and submitted via the web site. While accessed throughout the study period, the web site was more active during the periods before and after public workshops. It was hit over 150,000 times in 2011 and has had nearly two million hits to date.

4.7 Other Public Involvement Efforts

The EA will be made available for a public review and comment period. References for this EA may be found in the project files maintained by DelDOT.

4.8 Agency Coordination

To facilitate project development, DelDOT and the environmental agencies held frequent Coordination Meetings. Representatives from FHWA, USACE, EPA, SHPO, USFWS, DNREC, and the Delaware Department of Agriculture participated in these meetings. The National Marine Fisheries Service did not participate, but was provided all the project information and data given to other agencies.

The project team also had written communications with the agencies. **Appendix C** contains copies of the agency correspondence

4.8.1 Meetings

All four US 113 projects (Millsboro-South, Georgetown, Ellendale, and Milford) were discussed at the 47 meetings held with the agencies between March 2003 and August 2010. As alternatives were developed, they were presented, along with their impacts, to the agencies for consideration and comment. The dates of the Agency coordination meetings are listed below. **Table 16** outlines the topics covered.



- | | | |
|-----------------------|------------------------|------------------------|
| 1. March 13, 2003 | 17. April 20, 2005 | 33. July 17, 2007 |
| 2. June 5, 2003 | 18. July 14, 2005 | 34. September 25, 2007 |
| 3. July 10, 2003 | 19. September 9, 2005 | 35. October 23, 2008 |
| 4. September 25, 2003 | 20. January 12, 2006 | 36. December 2, 2008 |
| 5. October 9, 2003 | 21. April 13, 2006 | 37. January 13, 2009 |
| 6. January 8, 2004 | 22. September 19, 2006 | 38. February 19, 2009 |
| 7. February 27, 2004 | 23. November 28, 2006 | 39. March 26, 2009 |
| 8. March 31, 2004 | 24. December 12, 2006 | 40. May 28, 2009 |
| 9. April 8, 2004 | 25. January 11, 2007 | 41. July 7, 2009 |
| 10. May 7, 2004 | 26. February 8, 2007 | 42. September 24, 2009 |
| 11. July 8, 2004 | 27. February 22, 2007 | 43. November 4, 2009 |
| 12. July 22, 2004 | 28. March 14, 2007 | 44. December 10, 2009 |
| 13. July 27, 2004 | 29. April 5, 2007 | 45. April 13, 2010 |
| 14. September 8, 2004 | 30. April 23, 2007 | 46. June 24, 2010 |
| 15. October 14, 2004 | 31. May 10, 2007 | 47. August 12, 2010 |
| 16. January 13, 2005 | 32. June 20, 2007 | |

Table 16: Agency Coordination Meetings

Topics	Specific Items Discussed
Natural Resources	Inventory, wetlands, subaqueous lands, RTE species, field reviews
Engineering	Potential routes, traffic modeling, preliminary alternatives, logical termini, ARDS, alignment shifts, interchange options, updated traffic data, bridge study
Comments	<ul style="list-style-type: none"> From the agencies regarding: proposed action, environmental documents, alignments From the Working Group regarding: alignments, working group meetings From the public regarding: public workshops, alignments
Cultural Resources	Section 4(f), Section 106
Impacts	By alternative
Misc.	Project action items/schedule, project goals, Corridor Capacity Preservation Program, communities and future development, public involvement, project updates, Purpose and Need concurrence, 6(f) impacts, stormwater management, input from elected officials, direction from Secretary Wicks
NEPA	Environmental documentation, change from EIS to EA

4.8.2 Field Reviews – USACE and DNREC

Representatives of the USACE met regularly with the field teams during the wetland evaluations. The USACE and DelDOT committed to early planning and coordination efforts to assure that the wetland information generated would be accurate. USACE worked closely with DNREC and the Project Team to verify wetland identifications and determine the quality of each wetland surveyed. Seven field meetings/reviews were held between May 2004 and March 2007.

Information on RTE species was requested from DNREC and USFWS. The response from USFWS indicated the potential presence of swamp pink and Bald Eagles in the project area. Coordination with DNREC provided information on RTEs, Coastal Zone Consistency, forest quality, and State Natural Communities.



4.8.3 Field Reviews – Cultural Resources Evaluation – Section 106

Cultural resources, both architectural and archaeological, are present in the project area. Coordination with the Delaware SHPO has included meetings and field reviews to determine the presence of cultural resources, the potential for archaeological resources within the Refined On-alignment's limits of disturbance, and the eligibility of newly identified resources for listing on the National Register of Historic Places. Five DelDOT/SHPO coordination meetings took place between May 2006 and April 2007. Meetings to discuss visual and noise impacts, and a plan to test the Archaeological Predictive Model, would be held at a future date. Coordination would continue during completion of the determination of effects, through the development of strategies to minimize and/or mitigate adverse effects, and the completion of a Memorandum of Agreement.